

NEW WORLDS

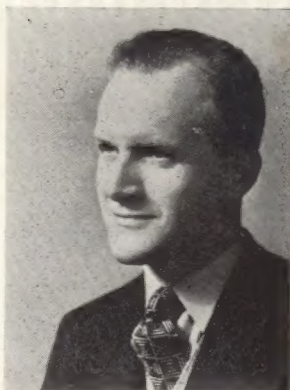
— PROFILES —

Charles

Eric

Maine

Middlesex



"Count-Down," which commences as a serial in this issue, is the ninth novel to come from this versatile 37-year-old British writer since his first one was published in 1951. His work has been published in the U.S., France, Germany, Italy, Portugal and Japan; additionally he has written for radio, television and the cinema screen—three of his novels having been made into motion pictures, while options on two more are pending.

Well known in Liverpool before the 1939-45 war for his activities in science fiction fandom and as publisher of an amateur s-f magazine, he formed a firm and lasting friendship with John Christopher and John Burke, both of whom subsequently became professional science fiction writers. During the war itself he became a signals officer in the R.A.F. and upon resuming civilian life turned to editorial work and finally professional writing.

Of "Count-Down" he says, "It is basically a suspense novel of the whodunit type, using a modernised "Ten Little Nigger Boys" theme in a setting of anti-gravity research on a small Pacific island, but departs from the classic whodunit pattern in its scientific content."

Long an advocate of the suspense-type of novel, Maine does not profess to write "pure" science fiction, but rather the "scientific thriller," of which his latest novel is a typical example. Due to be published in book form by Hodder & Stoughton Ltd., London, as soon as the serial concludes, the book will also be published in U.S.A.

NEW WORLDS SCIENCE FICTION

No. 81

VOLUME 27

2/-

New Serial

COUNT-DOWN

Part One

Charles Eric Maine

DOGFIGHT

James White

THE TROUBLE I SEE

John Brunner

SQUEEZE BOX

Philip E. High

CHANCE ENCOUNTER

Bertram Chandler

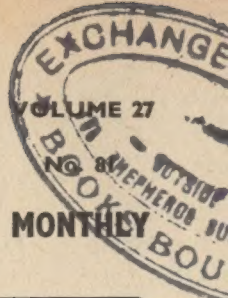
Features

**13th Year
of Publication**



NEW WORLDS SCIENCE FICTION

MARCH 1959



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Editor : JOHN CARNELL

Cover painting by LEWIS from "Count-Down"

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Bouquets to . . .

Somewhere in the hierarchy of the B.B.C. there must be someone who is particularly sympathetic to science fiction. Whoever it is, I think that we can be more than thankful that his penchant is for the sensible adult kind rather than the pure horror variety, or a tendency to lean heavily on low-grade imported film from U.S.A. (as Channel 9 did a year or so ago).

Few readers of *New Worlds* living within the range of B.B.C. television transmissions can be other than grateful for the major policy decision to make the recent "Quatermass And The Pit" serial, which ran from December 22nd to January 26th, and became a major talking point every Tuesday morning wherever people met. My only regret is that overseas readers are never likely to see the B.B.C. version, although there is every possibility that a feature film may be produced later on, as happened with the two earlier Quatermass stories. However, film versions seldom run true to type and it is more than possible that the canned variety will differ considerably from the sequences which came out of the little black box.

Congratulations are also due to author Nigel Kneale and producer Rudolph Cartier for making the most of their opportunities and coming up with a suspenseful drama packed with mystery and a deep underlying sense of *fear*. A fear (as opposed to the movie variety of *horror*) which had all the edge-of-the-chair emotion usually attributed to a first-class thriller. Excellent acting by Andre Morrell (as Quatermass), Anthony Bushell (as Colonel Breen), Cec Linder, Barbara Judd and John Stratton, plus the fact that the project was one of the most ambitious and expensive yet devised by the B.B.C., and its success was assured.

So intense became the (stage) antagonism between Breen and Quatermass that one newspaper reported that it had spilled over into their off-stage lives. There was little doubt that a great deal of emotion was put into the acting, as well as a never-ending series of poltergeist-like surprises.

Despite the team work involved in putting over such a first-class production, the main credit must go to author Kneale for evolving such a fresh plot and one bearing little or

... the B B C

no resemblance to anything we have come across in book, play, film or short story. It had the same impact as *The Triffids*, *Earth Abides*, and *Childhood's End* when they first appeared.

The fibre-glass shell of the spaceship used for the major scenes cost well over £1000—and really *looked* alien and not a hammed-up version of something out of a comic. Film sequences incorporated in the live production took four weeks to make and included a wonderful reconstruction of Martian racial suicide 5,000,000 years ago. Even London went up in flames as the final climax neared its conclusion—without the aid of models.

No wonder practically every newspaper critic played the serial up in feature articles and hazarded guesses as to the ultimate ending—with four possible solutions running through the theme. Little information was given away by producer Cartier during the six weeks—the security clamped down on events was almost as good as in wartime.

B.B.C. statistics as of the fourth instalment showed a viewing audience of ten and a half million, which are a lot higher than in 1953 and 1955 when the two previous “Quatermass” stories were played.

A few days after “The Pit” had ended, the B.B.C. followed up its success with a Canadian Theatre film, “The Radio-Active Man,” (which purely by coincidence had Cec Linder in one of the leading roles) and thrust home once again that adult science fiction when properly handled can be—and is—a fascinating addition to the normal fare.

What an object lesson to Hollywood producers both these samples have been! The big failure in the film world during recent years is the abortive attempt to marry science fiction to *horror* themes. Perhaps the feeling is that the term “science fiction” adds a cloak of respect to a class of film which has been heavily under fire of late. All the attempt has done is to bring the film variety of science fiction into disrepute.

By all means let us have more science fiction of the “Quatermass” variety—preferably by the B.B.C.

John Carnell

Experiments with anti-gravity devices are taking place right now and author Maine has taken this highly topical subject and extended it to its logical conclusion—propulsion for a new type of spaceship. The 'count-down' takes 72-hours before the ship is due to take off—during which period a lot happens . . .

COUNT-DOWN

By Charles Eric Maine

Part One of Three Parts

I

The long count-down began at precisely twelve noon on January 18th, and from that instant strict radio silence was observed. MacClennon at the eastern peninsula of the island threw the master switch that started the giant Agnes reactor on its slow warm-up to critical temperature. In the technical control room Miss Kinley synchronised the slave clocks with the master chronometer. Beyond the lagoon, on a flat spur of grey volcanic rock buttressed by new concrete, the slender gleaming nose of the rocket projected purposefully from the massive steel lattice of the service gantry. It was another of those hot still days: the weather had held steady for more than a week, and the drab surface of the atoll throbbed in the incessant sunglare. The meteorological reports had been optimistic—the barometer was high and would stay high for

at least three days. For the first time in more than ten weeks of waiting, conditions were right for the count-down.

After he had taken the scheduled cine shots of the starting of the reactor, Russell Farrant packed his photographic equipment into the jeep and drove to the summit of the hill to the south of the lagoon. The track was rough, but bulldozers had smoothed out most of the jaggedness. There were trees up here—a few palms and stunted dark green shrubs with leathery foliage, and tangled undergrowth—but on the dry slopes of the hill even the tough spindly grass failed to thrive; here and there it struggled stubbornly for survival in the dust-covered volcanic terrain. Come the rains, Farrant thought, and the stuff will spread overnight like a fungus—but right now the atoll was a baked monochrome wilderness. It could have been the floor of hell.

He picked up the 16-millimetre cine camera and swung the lens turret. Wide-angle for this job, then telephoto later. No need to use a light meter—the light hadn't changed for weeks. From here he could see the entire domestic camp, with its dural and asbestos huts, and across the lagoon the rocket launching pad, and around it, protruding from the ground and into the glowing sky, the gaunt trellis towers that supported the television cameras. The scene trembled in the heat, and that would register on the film—but it couldn't be helped. Colour film, of course—all shooting on Kaluiki had to be in colour. There was little enough colour to register when it came to the point, if one discounted the intense blue of the lagoon and the luminous gun-metal hue of the sky, but the government regarded colour as an additional channel of technical information, and every scrap of information on this project was vital. In seventy-two hours colour might be very important.

He adjusted the focus and range on the lens mounting and took four long shots, then swung the telephoto lens into place and made a slow panning shot that took in the entire panorama. Kaluiki atoll at zero minus seventy-two, he recited mentally, anticipating the tape recorded commentary that would eventually be dubbed on to the film. On the surface, silent inactivity, but in the small grey huts, mounting human tension. Under this burning sun and on this dessicated soil the clocks are methodically ticking off the seconds to operational zero. The machines are waiting, and men and

women are waiting, and the world . . . But that wasn't true. The world was beyond an impenetrable security blanket, and as yet Kaluiki was a meaningless word, though in three days it might be destined to take its place in the vocabulary of mankind.

He completed the panning shot and placed the camera carefully in the back of the jeep. Stills were next on the programme. For a few minutes he busied himself with a press camera and a colour film pack. So much for the long-shots. Now to move in closer for what they called in movie jargon midshots. He trundled down the hill track in the jeep. Hell, he thought, this is the first serious work I've done since I came to the island. Thank God for the count-down. At last I'm earning my salary.

Step by step he closed in on the camp, but skirted it finally, and transferred his attention to the rocket launching site. This was the impersonal stuff—scenery, huts, things. In due course would come the human interest angle. The people of Kaluiki, the scientists, on and off duty. Footage didn't matter: there was more than enough film in the stores hut to shoot a couple of first feature movies. Authority had been generous in framing his terms of reference.

"Farrant," General Douglas had said in that small chrome and white office in Washington, "this is history in the making. The Kaluiki project may well be the most important event of the century—in the evolution of mankind. Your job is to record it, using every medium at your disposal. Visually, on the cine and still cameras. In terms of sound, on the tape recorder. And in the black and white printed word, on your typewriter. It has to be a complete record—too complete, if it comes to the point. We can cut and edit later. Just make sure you miss nothing."

Farrant grinned wryly to himself. Somehow I'm not aware of any special feeling of responsibility, he thought. What does it mean, this role of observer, when you get down to fundamentals? The living eye witness, extended beyond the limits of his own senses with the aid of mechanical and electronic devices such as cameras and tape recorders. The history of the Kaluiki project will be the Russ Farrant view of things, supplemented by colour films and audio tapes—an objective appraisal of events in time and space.

The tall gleaming projectile standing silently within the steel mesh of the gantry is no more than the end product of mental teamwork, and when it comes to the point the team is more important than the product, just as the creator is more important than the creation. All of them here, on Kaluiki : Strang, Hoevler, Earl, MacClennon, Youd, and the two women, Kay Kinley and Hilde Bartok. They *were* the Kaluiki project. Without them there would be no Agnes reactor and no test projectile, and no official observer toting cameras in tropical heat, sweating from day to day on canned food and whisky.

Three more days, Farrant promised himself. After months of waiting it is almost as if the world has come abruptly to an end. Sure, it will be fine to get back to civilisation, but somehow you get used to conditions, and you get to like people, and you get to have strange feelings about a beautiful woman—well, maybe not beautiful in the classical sense, but attractive and poised and personable. That was Kay Kinley, of course—the clever, impersonal Kay—so close, yet so remote.

He completed the scheduled midshots, moving beyond the launching pad to the dull metal planking of the airstrip where the Navy helicopter stood hot and motionless in the sun. Obviously Lieutenant Frieberg and Sergeant Gant were still around, probably in the canteen, drinking brandy after a routine lunch out of the ration crates. Suddenly he felt hungry and thirsty. He stowed the cameras in the jeep and returned to the domestic camp.

There were half a dozen people in the canteen, including Frieberg and Gant, sitting on steel and canvas chairs around the small folding tables. Strang was eating stew with a fork, abstractedly, like a robot, his dark hair drooping limply over his saturnine face. The others had reached the drinking phase—whiskies and brandies from the appearance of the glasses—and George Earl was blandly smoking a pipe. Farrant responded to perfunctory greetings, making his way towards the hot plate. As he reached it Miss Kinley, looking outrageously cool in a white overall, materialised from the left.

"Hello, Russ," she said. "They've got you working at last?"

He nodded.

"You like M and V?"

"I'd prefer it iced."

"It's better hot. Makes you cooler quicker."

She served him from the large tureen and followed him across to a corner table. He ate for a while in a desultory manner while she smoked.

"Anything new?" he enquired.

"Should there be? The count-down is two hours old."

"Agnes okay?"

"MacClennon is still over there. According to the figures everything is dead on prediction."

He toyed with the stew for a moment, then pushed the plate away from him.

"What's the trouble, Russ? Excitement getting you down?"

He shaped his lips into a sardonic smile. "What excitement? A one-hour count-down, yes. Even ten hours. But three days. That's stretching things somewhat."

She smiled. "There's a reason for everything. Certain operations have to be carried out at prearranged times. Warming up the reactor is a three-day process, and there are more than a hundred pre-zero tests to be carried out."

"Maybe after three months I'm getting impatient. Once I get the feel of the camera I hate to let up."

"Once the Navy boys have left the pace will increase."

"When will that be?"

"Zero minus sixty-nine."

He performed the inevitable computation. "Three o'clock. And then . . . ?"

"And then it's all ours. No contact with the rest of the world until after zero."

"Maybe not even then . . ."

She shrugged, and extinguished her cigarette in the ash-tray. "It's a calculated risk." Then, inconsequentially: "Ice cream?"

He shook his head. "It wouldn't blend with M and V. Just coffee, I think, Kay."

She left the table and walked over to the mess range to pour coffee. He lit a cigarette, and in the same moment Lieutenant Frieberg appeared and flopped heavily into the vacated chair. Farrant found himself vaguely resenting the intrusion. Frieberg's pink, boyish face and blonde wavy hair seemed insolently glamorous in the austere environment of

the canteen, and his immaculate white uniform was slightly ostentatious. He might have stepped out of a Hollywood movie, straight from the wardrobe and make-up department. He was perspiring enough to glisten, and smoking a cigar with an irritating blasé air.

"Hi, Farrant," Frieberg pronounced affably. "Just the man I wanted to see."

Not mutual, Farrant thought, but what the hell? Another hour and you'll be on your way.

"Figured you'd want to get the Navy into your Technicolour epic, just to keep the record straight. Way I see it you can shoot the take off in the helicopter, but naturally we could use some close-ups."

"Why not," Farrant agreed reluctantly.

Frieberg glanced at his gold wristwatch. "And there's time for a tape interview, too. I guess there are plenty of questions you could ask."

"What's the time?" Farrant asked.

"Fourteen-eight. Maybe you could work Sergeant Gant into the act, too?"

"Probably," said Farrant.

Rising, Frieberg swung a hand in a parting gesture. "How about the airstrip, in half an hour?"

"I'll be there," Farrant replied.

The helicopter was the last physical link with the naval units stationed security-wise around the Kaluiki proving zone. During the months past there had been ships, of course, bringing the equipment and supplies, but the last ship had pulled out more than a week ago. Lieutenant Frieberg's principal mission was to act as an airborne despatch rider between the operational headquarters on the aircraft carrier and Guy Strang, the man in charge of the Kaluiki group. There had been very little radio contact between fleet and island in order to preserve maximum possible secrecy; apart from irregular channel tests, signal traffic had been virtually non-existent. Instructions and reports from one HQ to the other were conveyed on paper in a flat steel case with a double lock.

Strang himself did the cypher work, using one of the new electronic machines which created a new code for each letter of the message. The final word of command had been

delivered by Frieberg earlier that morning, a brief message ordering the start of the count-down. It also signalled the end of further communication between the island and the outside world, for the next seventy-two hours would take the form of a mechanical drill, rehearsed to perfection, in which each member of the team would carry out certain operations at a predetermined instant.

There was only one break scheduled in the signal black-out : at zero minus sixty minutes the television transmitter would be switched on so that the watching cameras could send scrambled pictures of the launching to special monitor equipment on the carrier. Authority had checked that it would not be possible for any inquisitive outsider to intercept and unscramble the video pictures before operational zero, so the circuit was safe.

Farrant recognised that Lieutenant Frieberg and his sergeant merited a place in the picture and sound records of the project, so he carried his cameras and the portable tape recorder over to the airstrip. He took pictures of the two men against the background of the helicopter, and recorded an interview which consisted largely of facetious gags by Frieberg punctuated by cryptic monosyllables from Sergeant Gant. Later he filmed the take-off. As he tracked the helicopter across the sky he became aware of an insidious feeling of isolation, and suddenly he found himself liking Frieberg and wishing he would return.—or was it simply that the Lieutenant had become a symbol of the rest of humanity receding beyond an invisible barrier ?

When the helicopter had diminished into a tiny black speck in the eastern sky, he joined the others who had come to watch the take-off. The three of them, Strang, Earl and Youd, wore an air of solemnity, echoing his own feelings.

“ When are they due back ? ” Farrant asked.

“ As soon as we break radio silence—after zero, ” said Strang. “ The whole damn island will be swarming with naval and government types—a full scale invasion. ”

Farrant looked out beyond the lagoon to the level surface of the Pacific, following the line of the curving horizon. Out there, over the edge of the world, the ships were waiting to move in. Strang was right enough—it certainly felt like an imminent invasion. He hoped they would be alive to welcome the invaders.

II

During the remainder of the afternoon Strang stayed in the reactor building with MacClennon and Miss Bartok, observing the early performance of the giant nuclear furnace. Beyond the massive instrumentation banks there was little to see, for Agnes was heavily screened by a lead and concrete wall. There were, in fact, four reactors, combined and interlocked into a single functioning unit, feeding the energy converters which were housed in an adjacent outbuilding. To the casual observer the reactor room, white and cubic, adorned by the glitter of the multitude of instrument panels, might have been a department of any one of the nuclear energy establishments in Britain or the U.S. Effective air conditioning kept the heat and humidity in check, so that, on leaving the building via the double steel door, the bleak tropical landscape outside seemed fantastically out of key.

Guy Strang was a compact man, a little short and a little overweight, but wiry enough beneath the loose khaki-drill shirt he wore. His black hair and dark eyes gave him a sullen appearance, but his mouth was straight and thin, as if his lips were kept permanently compressed. During his forty-five years of life he had collected a string of letters after his name large enough to form a new alphabet, but he rarely used them, and his business card stated bluntly : *Guy R. Strang, Physicist*. The term physicist was an understatement, to say the least, for Strang had been in the nuclear research game long before they exploded the first A-bomb in the Nevada desert. The Agnes reactor, and, indeed, the entire Agnes project, was largely his baby. The other members of the team had made their own specialist contributions, but the co-ordinating concept was his own.

Agnes was a code word, of course, and it stood for Anti-Gravity Nuclear Energy Supply—that was the function of the reactor. Outside the eight members of the team probably not more than a handful of people in the Western Hemisphere knew what was going on, and the governments concerned hoped most fervently that the Soviet bloc shared the general ignorance. There had been one or two speculative references in the newspapers about hush-hush research into gravitational fields, but investigation had revealed no leakage of information. No attempt had been made to castigate the editors concerned or to deny the rumours, since it was felt that any

kind of official reaction at all would tend to confirm that there was a certain amount of fire concealed behind the smoke.

Agnes embodied a principle so new and so unimaginable that, if it succeeded, the orthodox techniques of rocket propulsion would promptly become obsolete. Agnes symbolised a twenty-year lead over all comers on the long trail into space—if it worked.

Strang watched the instruments with a quiet absorbed interest. The reactor was behaving normally, but this part of the operation had been done before during half power test runs. Not until the final build-up of temperature and power during the last six hours of the count-down would it be breaking new ground. Here, in this room, was the weakest link in the chain: if the reactor behaved as predicted and delivered every single erg of the ten billion megawatts of required power to the launching equipment, then the space race would be won, and a rocket—an ordinary unremarkable rocket, but carrying electronic apparatus instead of fuel—would accelerate slowly towards infinity, always gaining speed, to the speed of light, and perhaps beyond . . .

It didn't have to be a rocket, though the streamlining would help on the take-off, but a conventional rocket was chosen for the test as a subterfuge. Espionage agents, if they were operating, would regard the activity centred on Kaluiki as merely another experimental launching of a stepped satellite.

Soon after five o'clock Farrant, armed with the inevitable cameras, arrived to take more pictures. He rigged up the photofloods to illuminate the instrumentation for colour, and exposed about a hundred feet of film, taking in Strang, MacClennon and Hilde Bartok. When he had finished he went over to the girl, who ignored him for a moment as she concentrated on writing figures on a calibrated chart. He looked her over casually. Almost blonde, and almost pretty, with clear blue eyes behind the horn-rimmed glasses. Thirty-five, maybe—possibly less. Engaging in her own solemn way, with a trace of accent to lend colour to her monotone voice. A Hungarian—until the war cut across her schooldays and sent her bustling with her family to the New World. Now an acknowledged electronics expert—and Farrant found himself wondering why women frequently chose a career of science and abstractions in preference to a normal family life.

She glanced up. "Hello, Russ."

"Hello," he said. "I understand you're doing the early night watch."

"Until midnight, then Mac takes over. It's six on and six off."

"Anything worth recording to-night?"

She referred to a green folder. "Zero minus sixty-two—that's at ten o'clock—reactor banks two and four open up to level two. If you go up to the catwalk you'll be able to film the dampers as they come out."

"I can hardly wait," he remarked with a faint hint of irony. She smiled vaguely, and an irreverent thought entered his mind. If I were to kiss her, suddenly, now, what would she do? Funny creatures, these scientific women. You don't expect them to have the predictable human reactions, and yet they're no different when it comes to the point. The trouble is I'm not one of them. I'm an outsider, with hardly a scientific thought in my head.

Don't they ever make a pass at each other, these men and these women, he found himself wondering. Or would a pass be infra dig on a project of this kind? Are they just extensions of the machines they control, or do they occasionally abandon the scientific viewpoint during the long warm tropical nights?

Interesting thoughts, but he felt a little guilty about them. "See you at ten, Hilde," he said, and went over to Strang.

"When you're not busy I'd like to talk to you, Guy."

Strang looked through him for a second or two. "What about?"

"Well, now that I've started recording the count-down in full, there are certain aspects of the project that I need to know in more detail—that is, if I'm to do an intelligent commentary."

"Talk to Hoevler, or Miss Kinley. They know most of the answers."

"I want to be able to quote you—maybe record an interview. As head of the team . . ."

"As head of the team I won't have time for interviews," Strang said brusquely, then, relenting: "Tomorrow, perhaps, if we can synchronise our lunch breaks."

"Thanks. I'll be there."

He collected his equipment, nodded to MacClennon, who was adjusting wheels on a big control panel, and made his

way out of the reactor building. Absently he drove the jeep around the lagoon towards the group of huts clustered about half a mile from the launching pad. He parked outside the entrance to a long asbestos sheet and wood frame building bearing the sign *Ballistics—Technical Services*.

Casually he sauntered along a bare corridor, past four doors to a fifth on which a white plaque announced : *Computer and Radar Section—Miss K. Kinley*.

Well, that's what the man said, he told himself, eyeing the plaque. Talk to Hoevler, or Miss Kinley. What a choice ! Drink water, or wine. Eat dry bread, or peaches and cream. And, thinking back further, who'd want to make a pass at Hilde, anyway, with a woman like Kay around ?

He knocked on the door and went in.

There were two people in the room with their backs towards him, beyond the grey panelled computing consoles, over at the remote end where the slave radar screens stared sightlessly with their glowing green eyes. One of the pair was Kay, and the other was George Earl, the Security Officer. They turned round as he entered, and waited until he had crossed the room to join them. Kay made a welcoming smile, and Earl remained his smooth impassive self. The old brown pipe hung at a melancholy angle from a corner of his mouth ; Earl and his pipe were seldom seen apart.

"No cameras this time ?" Kay queried.

"No—I'm after information," said Farrant. "Incidentally, I hope I'm not breaking in on something . . ."

"As a matter of fact, you are," Earl murmured in a furred voice that sounded sleepier than usual (a sign that his mind was probably working on something, Farrant thought). "But you might as well join in the fun."

"What fun ?"

Kay indicated one of the radar screens, circular, about fifteen inches across, with a pale green line scanning radially like the hand of a stop watch. An identifiable pattern of light spread behind a calibration grating indicated the shape of Kaluiki island. The lagoon was a dark circle, and the huts and buildings formed precise bright blobs around its fringe. She moved a milled knob and the pattern seemed to shift upwards, but the lagoon was still visible at the top of the screen.

"Just here," she said, pointing with an elegant fingernail to a brilliant speck shining among an area of featureless mottling.

"What is it?" Farrant asked.

"That's the big mystery, Russ. I don't ever remember seeing it before now."

He glanced quickly at the girl and saw a hint of genuine puzzlement in her expression. He looked at Earl but saw no surface reaction at all.

"Well, what *might* it be?"

"Almost certainly a metallic object—quite large to have such a strong echo."

"So there's plenty of metal on the island, so what?" Farrant remarked.

"That's not the point, Russ. Check the grating. You'll find that the echo is coming from a point about four miles south of the lagoon."

"That would be on the hill . . ."

"Beyond it—on the far slope. There's no equipment of any kind in that area, nothing that could give an echo."

"Wait a minute," Farrant said thoughtfully. "I went up the hill to take long shots a few hours ago . . ."

"The far side?"

"No."

"That hill is three miles long. It's more like a plateau."

"True. I was just wondering if maybe I left something behind—a camera, for instance."

She eyed him questioningly. He made a quick mental check.

"But I didn't."

She shook her head doubtfully. "A camera wouldn't give that kind of echo—nor would the jeep, for that matter. This thing is really big."

"How about a vein of metal in the rock strata—iron ore, even gold?"

Earl said quietly and a little contemptuously: "There's no gold in them thar hills, Russ. And there's no rock strata. This island consists mainly of volcanic lava plus some dried alluvial sediment thrown up from the ocean bed."

"So what do *you* make of it?" Farrant demanded, feeling vaguely irritated by the other's manner.

Earl shrugged. "No ideas at all. But I intend to find out. Lucky you came. We can use the jeep."

Farrant glanced at his watch. "It'll be dark inside the half-hour. And the track stops at the top of the near slope. Think there's much point?"

"We can use torches and footslog it across the plateau."

"Wouldn't it be better to leave it until tomorrow?"

Earl sighed passively. "You're so right, Russ. But on a project like this nothing can wait. You don't imagine I fancy traipsing two or three miles through semi-jungle with a torch. But let's give our imagination a whirl. Suppose—just suppose—that in some way the Ruski's managed to land an inter-continental missile with an H-bomb warhead on this island. Suppose the H-bomb has a time clock." He pointed to the bright speck on the radar screen. "There it is—an H-missile with a hammer and sickle painted on the side."

"In that case oughtn't we to report to Operation HQ on the carrier?"

"And break radio silence? Not on your nelly, Russ. Anyway, it's all supposition, and all we have is a mystery echo. It may even turn out to be a fault in the radar. But we can't take a chance on it—we have to do some night exploring."

"Okay," Farrant said. "I'll come with you."

Earl sucked at his pipe, found it dead and relit it. "Fine," he observed calmly. "And we might as well do the job properly. Kay, will you give us the most accurate pinpoint you can on the position of the thing."

"I'll do my best."

"And you, Russ—can you get hold of torches and batteries? And a spade?"

"A spade?"

"Better bring two, and a pickaxe. We may have to do some deep digging. Oh, and you may need your cameras."

"You figure there'll be something to photograph?"

"Who can tell? Meanwhile I'll organise a flask of coffee and some sandwiches. And I'll pick up my revolver while I'm about it."

"You mean . . ."

"I don't mean anything, old son, but I'm security dog, and the gun is my canine teeth."

"Okay," said Farrant, feeling slightly put out by Earl's suddenly revealed capacity for urgent action. "Where shall I see you?"

"Back here, in about half-an-hour. We'll take our final briefing from Kay on the exact position of—of the big mystery."

Feeling curiously reluctant, Farrant went off to accomplish his part of the preliminaries to what looked like being a long and unpleasant wild-goose chase across the relatively unexplored hinterland of the island.

III

On the surface George Earl was an unassuming, taciturn individual, handsome in a mature, domestic way. His age was around forty, Farrant estimated, and though he had a good helping of hair which he kept brushed straight back, it was greyer than it ought to have been. Most of his career had been spent in uniform, and Farrant understood that he had until latterly been a captain in the Military Police. He gave the impression of inherent lassitude, but the appearance was deceptive for, when the situation warranted it, Earl could put on an impressive display of relentlessly applied energy . . . as to-night, for instance.

They left the jeep at the top of the track on the northern flank of the hill, and advanced due south through the clumps of brush and stunted trees that adorned the summit like a gigantic wig. It wasn't dense enough to be jungle, but the straggling vegetation concealing occasional creepers impeded their progress. The moon was in its first quarter, casting no more than a pallid ghostly glow which did little to illuminate their path.

After they had traversed some three miles they came upon the southern slopes of the hill. The trees and vegetation thinned out into coarse clumps of needle-like grass, and presently they were on bare volcanic rock once more. In the faint moonlight the landscape looked monochrome and perfectly normal.

Earl called a halt, and they took the opportunity to down packs and tools for a few minutes. Squatting on the dusty ground they sipped hot coffee from the flask and smoked cigarettes.

"We've come too far," Earl pronounced. He inspected the map which Kay had drawn for him using one of the torches.

"We probably passed the point about half a mile back—on the left, if this map is anything like accurate."

"What do you expect to see?" Farrant asked.

"How should I know?"

"Then how do you know what to look for?"

"I don't, old son."

"That's what I mean," Farrant pointed out. "The whole business is so vague. You said it could have been a radar fault, so wouldn't it have been a good idea to check the radar first."

"You think Kay wouldn't know if the radar were faulty?" said Earl with some acidity. "You don't give her credit for much intelligence."

"I give her credit for a damn sight more than intelligence," Farrant retorted, wondering why it was that the other man's silky voice always seemed to get under his skin. It wasn't even what he said so much as how he said it.

"Well, now, we all do that, but we don't brag about it," Earl came back. Farrant felt his temper surging, but held on to it grimly.

"I'm not bragging about anything," he stated in a voice that was just a little too deliberately calm. "I'm just trying to be logical about this business. We ought to have made sure there wasn't a simple explanation first before chasing about in the dark . . ."

"Then keep your shirt on, old son. You can't be logical if you keep getting in a tizzy whenever I happen to mention Kay. Anyone would think you were stuck on her. Or maybe you are?"

"Maybe you ought to mind your own damn business," Farrant said hotly, resisting an urge to bunch his fist and lash out at the other man's suave expressionless face.

Earl said gently: "Now let's not get aggressive. If I'd thought you were going to get nasty like this I'd have come alone, or asked Hoevler—he's not so sensitive as you."

Farrant stood up, and was shocked to find himself trembling in his arms and legs. I must keep control, he told himself. Maybe Earl is right. Maybe I am too sensitive, and maybe I am stuck on Kay. But whatever happens I must keep control. Then, an instant later, a sinister thought gleamed starkly in his mind. *There's something in the atmosphere around here. Something that grates the nerves and sets them on edge. Some*

kind of invisible corrosive acid. It's affecting both of us, and that's why we're snapping at each other.

He took a deep breath and shook his head in a gesture of dismissal, then bent down to pick up his pack with the two spades pushed under the straps.

"Let's get out of here," he suggested.

Earl retrieved the other pack with the pickaxe, and led the way back into the brush. "If you'll now permit me to be logical," he said, "I suggest we split up and go our separate ways. And that doesn't mean you can return to the camp. The general idea is that separately we can cover twice as much ground."

"Okay," Farrant muttered sourly.

They moved off into the night, Earl jaunty and occasionally whistling softly to himself, Farrant sullen and rather depressed. Farrant followed the bobbing luminous circle of light cast by the torch, stumbling over shrubs and tree roots, casting around occasionally to scan the ground in a cursory fashion. This is sheer lunacy, he kept telling himself. Glancing briefly at his watch he saw that the time was already well after nine, and that meant he would have to abandon part of his filming schedule. Authority would be likely to frown on that. True, the boosting of reactor banks two and four might not be so very important in itself, but it was part of the count-down procedure, and as such should be on film. That was his job—recording the count-down, not pursuing a phantom radar trace through tropical scrub. Tomorrow Kay would find that the whole thing had a simple, even fatuous, explanation.

Think, he ordered himself. A large mass of metal embedded in soil and rock that was once part of the ocean bed. What could it be and how did it get there. Unless . . .

A picture floated hazily into his mind, a blurred and ill-defined picture, sharpening and brightening as if someone were focusing a projector on the backdrop of his consciousness. A ship filled the centre of the picture—a rusted and barnacle encrusted hulk lying still and silent in the green twilight of the deep ocean. Fishes glided dreamlike through derelict hatches. Then, abruptly, the ocean floor rose up in a gigantic upheaval, and, incredibly, there was leaping incandescent fire beneath the dark green water, and the scene dissolved in an inferno of boiling chaos. Later, an eternity later, the chaos subsided and he was looking across a calm ocean to a new island from which

smoke and steam still drifted hazily upwards towards the burning sun.

The picture faded, but now he knew the answer to the mystery of the radar echo. Somewhere on this plateau, buried beneath the trees and shrubs, were the remains of an ancient iron hulk that had once been a ship. That was the explanation of the bright speck on the radar screen—a large metal object, Kay had said. Well, it had been there all the time, but she hadn't noticed it before—probably hadn't had cause to notice it. You can live with something for day after day without seeing it until, abruptly, wham !—there it is right before your eyes.

Let's see how Earl wriggles out of this one, he thought jubilantly. What price logic now ? “ A hulk ! ” he said aloud, unable to restrain the triumph in his voice. “ A stupid rusted old wreck of an iron hulk ! ”

Then he retraced his steps, shouting George Earl's name with all the vocal power he could muster.

Earl was not only sceptical ; he was bitterly hostile to Farrant's dream. “ Ridiculous ! ” he uttered scornfully. “ A hulk be damned ! That's the craziest idea I've ever heard in my whole life. A ship on top of a hill ! ” And then he laughed.

It was the laugh—short, contemptuous, and humourless—that infuriated Farrant most. He struck at the other man with a wildly swinging right and had the satisfaction of feeling his knuckles bore into resilient flesh with an underlying structure of bone. That was the side of Earl's too smooth face. Earl swayed backwards, stumbled, almost fell, but managed to recover his balance with a frantic flailing of his arms.

Farrant stood tensed and angry, watching closely as his opponent recovered his composure, ready to strike again if necessary. But once again Earl stole command of the situation. His hand moved slowly, almost casually, to his pocket, and in a moment he was holding a long-barrelled Service revolver. He took a step nearer.

In an instant of appalled insight Farrant saw everything as it really was, objectively, like a frozen moment from eternity. “ George,” he gasped, “ this is insane. What's got into us, acting like this ? ”

Earl's voice was small and cold. “ What's got into us is that we've taken the masks off for the first time, Russ. And we don't like what we see behind the masks. Now I swear to God

I'll kill you at the slightest provocation and I'll drag your body to the jeep and I'll dump you in the Pacific and the sharks will have a field day."

"I believe you would," Farrant breathed. The moment of insight had gone; he was tensed and cautious again, unafraid of Earl himself, but fearful of the gun and the steadiness of the hand holding it.

"All right," said Earl carefully. "I owe you a sock in the puss, but I'll do it in my own time. Right now we've got work to do."

"Not me."

Earl replaced the revolver in his pocket. "You quitting? Then quit. And good riddance."

"It's not a matter of quitting. I've got duties of my own to carry out, and they rate higher than chasing a buried hulk of scrap iron."

"Go to hell," said Earl shortly.

He turned his back and walked off into the darkness.

Still angry, and conscious that he had been humiliated, Farrant pushed his way along the trail that led back to the jeep. I'll talk to him tomorrow, Farrant promised himself. It may be a sense of psychological fatigue—the count-down after all the long monotonous weeks of waiting. When we've both had a sleep we'll feel differently. We'll probably laugh it off . . .

Curiously he was aware that there was no thought in his mind as he walked, only a vacuum in which a headache throbbed faintly. Tomorrow he could think about the problem, analyse it, and reach a decision, but for tonight only one essential remained, and that was sleep.

IV

Farrant awoke early the following morning, around six-thirty. The headache had become intolerable, and sleep was no longer possible. He was puzzled about the headache, for it was something he had rarely experienced, but in the end he attributed it to the wearying effect of the previous night's long trek over the Kaluiki hill. What to do about it, that was the point. The canteen was not yet open, but he could make coffee with the aid of a spirit burner. That might help the headache; if it didn't he would need to see Doc Youd.

He lit the stove and put on a can of water. The low morning sun shining through the window cast a golden rectangle on to the grey asbestos wall. So much for George Earl, he thought. He'll have to be a damn sight more convincing before he drags me on any more of these crazy excursions into the backwoods of Kaluiki. And I hope his headache is worse than mine right now !

He made the coffee strong, black and hot, and drank it leisurely, then washed. At this point he noticed a dried brown substance staining his hands and forearms in random blobs, almost as if he had been splashed with some kind of matt paint. It could have been blood, he realised, but as there was no sign of a cut or abrasion on his arms, he attributed it to the hill trek—very likely it was the sap from a shrub or tree which became oxidised and discoloured as it dried out. He continued washing, then shaved. The headache continued to beat savagely behind his eyes, making thinking difficult, but, happily, there wasn't much to think about, and the day's work ahead was largely routine.

He put on a clean white shirt and clean grey slacks, bundling the cast-off clothing of the previous day into the laundry box behind the bunk, but, on an impulse, took it out again and checked it over. More dark brown stains, particularly on the slacks, and they certainly *looked* like dried blood. "Curious," he said aloud, finally discarding the clothes.

Next he opened the canvas pack, propping the spade against the wall, and removed the contents checking the cameras for signs of damage, but all seemed to be well. He wondered momentarily about the other spade, for he distinctly remembered taking two, but George Earl had probably borrowed it for some reason. And then, right at the bottom of the pack, he found the revolver.

He sat on the edge of the bunk, holding it by the long blue-grey barrel, staring at it in blank fascination. "What the hell am I doing with George's revolver?" he demanded suddenly. Turning it over and inspecting it he found one of the chambers empty, but that didn't necessarily mean that it had been fired. The police would have had a way of checking, of course, by peering down the barrel, sniffing at it, and so on, but the police didn't come into the picture at all.

Stubbornly he forced his aching brain to recall the events of the night, but—funny thing—there was no memory at all, or,

rather, only the commonplace memories of the long toil across the plateau pursuing the will-o-the-wisp light of the torch, of splitting from George to make an independent search, of finding nothing, of returning in the jeep . . . With George? Of course. What else? Even the Security Officer wouldn't choose to spend the whole night on the hill.

I imagine he must have dropped the gun some place and I found it, he told himself. Or maybe it slipped out of his pocket in the jeep. I'll return it later.

At eight o'clock he went over to the canteen and found himself the first arrival. The canteen was run on "do-it-yourself" lines, though that had not always been the case, but during the past ten days, when the count-down became imminent, the catering staff and the native labour had been removed from the island, and cooking became a technique of can-opener plus electric stove, at which everyone took a turn.

He glanced at the framed schedule of meals (the "menu" as it was euphemistically labelled) hanging on the wall of the ration store and found the code number for the morning's breakfast. This time it wasn't in a can, but in an airtight pack in the deep-freeze tank. He opened the box and removed eight wrapped portions of pre-cooked liver, bacon and tomato, putting them on one side to thaw, then attended to the matter of preparing coffee.

Kay arrived ten minutes later, looking cool and fresh even though the morning temperature was already in the seventies. She was wearing a white nylon blouse which did nothing to conceal the strapless brassiere underneath, with a limp blue-grey skirt and white ankle socks plus white open sandals. Farrant looked her over appreciatively, despite the headache. You could put Kay into the dark beauty category, he decided, although her hair wasn't quite black, and her eyes were hazel rather than brown. She had something of the sultry Latin gloss in her features, but coupled with a fine poise and steady thoughtful eyes. Not exactly a pretty girl, but personable—the kind a man would instinctively look at more than once.

"Morning, Russ," she said. "Let me take over."

She concentrated on the pre-cooked breakfast while he stood watching her.

"You look wonderful this morning, Kay," he said.

She glanced archly at him. "Meaning I don't any other morning?"

"You know what I mean."

"Sometimes I wonder if you don't mean a lot more than you say."

"Better than saying more than I mean, isn't it?"

She looked at him again, and there was an intent quality in her eyes that momentarily did something strange in the region of his heart.

"I guess so," she said. "Find any H-missiles last night?"

He acknowledged the quick change of subject with a laconic smile. "We drew a blank, but we also worked out a neat theory that would explain the mystery of the radar trace."

"For instance?"

He explained how a wrecked ship might conceivably have been lifted from the ocean bottom on the crest of a gigantic subaquean upheaval, to become embedded in the superstructure of a newly born volcanic island.

"Ingenious," she conceded, "and could be right. It wouldn't need to be a whole ship—just a sizeable piece of it. On the other hand, Russ, I hardly think this is a newly born atoll. It's one of a permanent group."

"Newly born is pretty flexible. In the past fifty years, say. Or for as long as they've been making ships of iron and steel."

"I suppose we could find out. The oceanographers gave this zone a thorough going over in view of the nature of the Agnes project. It could be dangerous to have geological flaws and latent volcanoes when you're about to take space and gravitation and give it a big twist."

"That reminds me, Kay. Strang suggested I should talk to you about the Agnes test."

She raised her eyebrows quizzically.

"I'm after some technical details—background stuff. I have a general idea of what goes on, but to write a coherent commentary I really need to dig a little deeper."

"All right, Russ. But why don't you try Hoevler? He's the ballistics man, and he's very good at expounding complex science in words of one syllable."

He nodded. "I'll try Hoevler in due course, but first I'd rather try you, even if it's only an excuse to talk to you for a while."

"Do you *need* an excuse to talk to me?" she enquired mildly.

"If I didn't I'd be a much happier man," he replied.

Strang and Miss Bartok came into the canteen at that moment, closely followed by Joseph Hoevler, the young old man of the team. The coffee was ready, the breakfasts were hot enough, so Farrant and Kay joined the others for the first meal of the day.

Doctor Graham Youd was only a part-time medico, for the seven remaining members of the Kaluiki team were singularly undemanding in their clinical requirements. There had to be a doctor, of course, but a doctor trained to perform a dual role (this applied to all the members of the expedition, and even Farrant had been trained to operate the radio equipment and television channels, if required, and also to carry out certain mechanical tasks associated with the rocket's take-off preamble). Dr. Youd had specialised to some extent in the medical applications of radioactive isotopes, so that it was not unnatural that he should be briefed to double-up on the handling of the Agnes reactor instrumentation. If he wasn't in his small but well-equipped surgery, or in his billet, then he would almost certainly be found in the reactor block.

That was where Farrant finally ran him down. Miss Bartok was there, too, having taken over from MacClennon at six a.m. Youd and the girl were chatting casually near the control desk. Looking at them from a distance you might have thought they were brother and sister; both were about the same height, with fair hair and round faces, complete with blue eyes peering through horn-rimmed glasses. But in close-up you could detect the underlying differences of bone structure: Youd had a snubber nose and a heavier jaw, and his forehead was higher; further, his skin had a greasy appearance which made him look as if he were continually perspiring, even in the cool of night.

"Hello, Doc. Hello, Hilde," Farrant said.

The girl eyed him questioningly. "You didn't come last night."

"Sorry. I got dragged on a cross-country run instead."

"What was this—a clandestine date?" Youd enquired.

Farrant nodded. "With Agnes—she was having her dampers pushed in or pulled out, I'm not sure which."

"The smoke goes up the chimney just the same," Youd pointed out quite seriously.

"If you're interested, Russ," said Hilde, "we're pulling the banks one and three dampers at two o'clock. Fourteen hundred, or zero minus forty-six to be precise."

"I'll just have to make it this time, Hilde."

"MacClennon will be on. Meanwhile, what can I do for you now?"

"Nothing. I came to see Doc."

Youd took off his glasses and wiped them with a small yellow pad which he produced from a tiny plastic box with the air of a conjuror. "What can I do for you, Russ?"

"Aspirins, I guess. I've got a stinking headache."

Youd replaced his glasses and surveyed Farrant with a professional air. "Where?" he demanded.

Farrant pointed to his temples. "Behind the eyes."

"When did it start?"

"Last night."

"What time?"

Farrant took time off to consider that one, but found he couldn't remember. "Oh, latish. Maybe around ten. I went exploring over the hill with George Earl."

Youd registered surprise. "Last night? After dark?"

"We were just checking up on a buried ship."

The doctor's surprise became modulated by concern. "Were you out in the sun a great deal yesterday, Russ?"

"Maybe a couple of hours, filming longshots."

"Without a hat?"

Farrant shrugged. "I never wear a hat."

"You damn well should," Youd proclaimed dogmatically.

"Never take chances with the flaming sun round these parts. You made matters worse by all that late night exertion. How about George? Is he all right?"

"So far as I know, Doc."

"Well, you'd better come back to the surgery with me. I'll fix you up."

"Thanks."

Farrant accompanied the doctor across the baked grey ground to the domestic site. The sun was getting into its stride again; already the paraded huts were trembling in the heat haze. Maybe the Doc is right, thought Farrant. Kaluiki is like an oven, and you really can't take chances with that kind of sun.

In the surgery the doctor gave him a hypo shot in the arm that cleared the headache in fifteen seconds flat, then handed him a small glass tube of tablets.

"Take one every two hours, and if you come here again with sunstroke I'll make the treatment more painful," said Youd with mock sternness. "Don't forget, sunstroke rates as a self-inflicted injury."

"I'll remember," Farrant promised, but all the time he knew very well that it wasn't sunstroke at all. The headache had been almost an organic thing, as if someone had tampered with his brain and bruised it in the process. At all events, it was now a thing of the past and he could forget it.

Before picking up the routine of the day's work he returned to his billet and put Earl's service revolver in his pocket. Then he called at Earl's billet, but found the door locked. There was no response to his peremptory knock. Peering through the window he could see that the room was empty and that the bunk had been neatly made up.

Slightly irritated, he patted the hard shape of the gun in his pocket, then made his way towards the Technical Services Section near the launching ramp on the other side of the lagoon.

V

From the window of the radar-computer room you could look out on the clear blue water of the lagoon, and even catch a distorted view of the bottom, which, though uniformly grey, was splashed with green here and there where underwater plants had taken hold. Sometimes there were fish of various colours, and once a small octopus ventured into the shallow water, but soon retired to the protective gloom of the deeper ocean.

Farrant and Kay stood for a while, staring rather dreamily at the scene. The time was eleven o'clock, and somewhere behind them in the room a computer whirled and clicked like a chirpy cricket.

"As soon as this count-down is over, I'll be in there—swimming and cooling off," Kay murmured drowsily. "That's one thing I've missed this past twenty-four hours."

"Me, too," Farrant agreed. "Suppose we take ten minutes of the government's time . . ."

"It's verboten—until after zero."

"How could it possibly affect the count-down procedure?"

"That's not the point, Russ. Strang wouldn't approve."

Farrant sighed. "The ultimate deterrent! Sometimes I wonder if Strang isn't just a little too formal in the way he interprets official instructions."

"He's doing his job. The drill has to be carried out just so, then we know nothing can go wrong. And, incidentally, you didn't come here to talk me into swimming . . ."

She turned to him and put her hands on his shoulders. "Let's get down to business, Russ."

Farrant found her nearness quite unsettling. It was getting to be more and more so every time he saw this woman, and her image in his mind was taking on the persistent quality of an obsession. I must remain objective about her, he told himself. She treats everyone the same, with the same friendly candour, on a non-differential basis. I must not try to read between lines that don't exist, or try to interpret signs that were never intended.

Aware that his heart was beating uncomfortably, he walked away from her and sat on the corner of a glass-topped table on one side of the room. He lit a cigarette, inhaling slowly and deliberately while he suppressed the frustrated fluttering of his emotions.

"About the rocket, and about the reactor," he said.

She came over to him and sat on a tube-and-canvas chair.

"I know in general terms that the energy from the reactor will be used to set up a kind of force field in which the rocket will lose weight and take off," he went on. "But I don't understand how or why."

"To explain exactly how or why would take several large sheets of advanced maths," she said, smiling. "It starts with a laboratory phenomenon called nuclear magnetic resonance. An atom at the point of focus of an intense oscillating magnetic field will absorb energy when the frequency of oscillation resonates with the orbital period of the electrons."

"Could we have that in English, please?"

"That's about as English as you can get it, Russ. I still think you ought to see Hoevler."

"Carry on. I'm listening."

"Well, what Strang did was to substitute electrostatic force for electromagnetic. A curious thing happened. The atoms under test disappeared."

"How could he possibly know that, atoms being so small?"

"There are ways of measuring on a statistical basis. In fact, they hadn't disappeared at all. They'd simply lost all cohesion with surrounding atoms outside the force field. They'd dropped out of play, as it were."

He drew deeply on his cigarette. "Is that important?"

"More important than you realise, Russ. Strang knew that something queer was happening. There's a parallel between the force that binds atoms into molecules and the force of gravity that binds planets and stars into galactic systems. He realised that to get anywhere at all he would need dollars galore and all kinds of laboratory facilities. So he put the matter to the government. It was a long chance, but they took it. The President himself authorised the okay."

"So that was the start of the anti-gravity research?"

"And the start of the Agnes project. Strang spent years working on his gimmick. What he discovered was this—that if you can create a powerful enough electrostatic field, using billions and billions of volts, something in the space in that field twists and becomes distorted, and at the same time absorbs an immense amount of electrical power. But once you've established the twist, you can keep it going indefinitely with very little power, because you've overcome the inertia."

Farrant stood up and started to walk round. "I'm beginning to get something out of it," he said thoughtfully. "At least, something is adding up. This business of twisting space—doesn't that connect in some way with Einstein?"

"Yes, it does. Einstein showed us that space is curved in the neighbourhood of a gravitational field. He proved it by astronomical experiment."

"Wasn't that when he bent the light from a star as it passed near to the sun?"

"Einstein didn't do the bending. He merely observed it. But the light *was* bent, because the space around the sun is curved. Now, what Strang did in effect was to twist a piece of space so that the curvature ran the opposite way. You can guess what happened."

Farrant considered. "He cancelled out the gravity."

"No. He reversed it. It's simple enough, Russ. Space curvature shows the presence of a gravitational field. The stronger the field, the greater the curvature. But if you bend space the other way, you create conditions of negative gravity."

"I see," he murmured doubtfully, pondering the concept.

"And that's all there is to it," Kay went on. "The Agnes reactor is building up slowly to a peak of power which, at operational zero, will be delivered in one lump to the energy converters which feed the electrostatic resonators on the launching pad. The rocket is in the dielectric centre—that is to say, it will be in the middle of the piece of space that's going to be twisted. Once the twist has occurred, the reactor can close down, and the field is maintained by the low power equipment in the rocket. Using radioactive batteries with solar charging, the rocket should keep on travelling more or less indefinitely through space—at least until the batteries get too low to maintain the field, and the twist untwists."

"What happens then?"

"Nothing much. The rocket will simply respond to the most powerful natural gravitational force in the vicinity, and probably crash land."

"Mm," he grunted, still pacing the floor. "There was talk of fantastic speeds—approaching light, for instance."

"Why not? Negative gravity will have the same characteristics as ordinary positive gravity, and an acceleration constant. Here on earth a falling body accelerates at thirty-two feet per second every second, and keeps on accelerating. If it could keep falling long enough it would eventually attain the speed of light. The same principle applies to negative gravity."

"At what acceleration?"

"We're not sure. Strang estimates a field acceleration constant of about ten feet per second squared, but it might be much greater. It depends on just how much twist Agnes can put into the space around the rocket."

Farrant stopped pacing and looked at her, then stubbed out the remains of his cigarette in the ash tray on the table.

"And there you have most of the story," she said. "And I still think you ought to see Hoevler if you want to understand it properly."

"You did fine, Kay," he said. "I get the general idea, though I find it hard to visualise twists in space."

"They're best visualised in terms of mathematical formulae."

"The bit about inertia clicked with me—how it takes tremendous power to break down a barrier, but once you've broken through you can keep it that way with little effort. That's true of many things, and not only in nuclear physics and ballistics."

"What things?"

"Human beings, for instance."

She stood up and came over to him, and something in her manner put a spin into his senses. "In what way?" she asked.

"Well," he said hesitantly, "I've got a barrier of my own that I've been trying to break through for some time, and I'm still trying to build up power to do it."

"So why don't you try?" she said quietly.

"Because I'm not sure whether the theory will hold true—whether it will stay broken with little effort."

She placed her hands on his shoulders, and drew nearer. "How will you ever know, Russ, unless you try the experiment?"

He kissed her. She didn't resist, but allowed herself to be drawn into his arms, accepting the kiss with a leisurely response. And when he broke away she put her lips to his again. It was a warm, unhurried moment of personal communion. Eventually he released her, but she made no effort to move away.

She whispered: "I've been wanting you to do that for longer than I can remember."

"So have I," he answered. "Do you think we can maintain the twist, Kay?"

She smiled. "It isn't a twist at all, Russ. It's the most straightforward and natural thing in the world. You ought to know that."

At fourteen hundred hours Farrant took the scheduled photographs of the boosting of the reactor banks, then went over to the launching pad where Joseph Hoevler was working on the rocket. It was not the first time he had seen the massive equipment inside the gantry, but it was the first time he had been able to look at it knowledgeably, with some basic understanding of its purpose. The rocket itself stood vertically on its stabilising fins, a shining silver cigar-shape poised to leap into the glaring sky. It was not a big rocket by modern standards, probably less than ninety feet in length, but it was

big in the historical sense (or would be, if the project proved successful).

Spaced equidistantly around the base were four giant rectangular structures interconnected by cables as thick as a man's wrist. They appeared to be made of black metal, and could have been taken for grid power transformers, except for the sloping instrument panel fitted to the top of each. Other equipment was positioned beyond the gantry, but Farrant was unable to guess its purpose. Taken all together, however, these were clearly the gadgets designed and destined to set up the negative gravity field in and around the rocket.

As Hoevler was nowhere in sight, Farrant ascended the gantry in the electrically operated elevator which lifted him to the oval service port two-thirds of the way along the slender length of the projectile. The port was open, so he climbed in.

He was standing on a narrow dural platform looking down into the tubular depths of the rocket. A metal ladder ran the full distance from base to apex. The customary fuel tanks had evidently been removed, and as a result there was a great deal of unoccupied space. Platforms above and below him carried equipment of indeterminate function, with a maze of wires and cables lining the shell like arteries and capillaries.

Hoevler was beneath him, working on a platform some fifteen feet down. It was the light from his inspection lamp that was diffusely illuminating the whole interior of the rocket. Farrant transferred himself to the ladder and made the descent.

"Hello, Russ," said Hoevler through his beard as Farrant joined him on the platform. The beard was an ageing device. Though turned thirty, Hoevler had a round baby face with pink cheeks, and a concealed chin that receded slightly, and it was to offset these physical affronts to his mature masculine dignity that he had carefully cultivated his full unkempt beard. It swept grandly from ear to ear, obliterating his chin, mouth and most of his cheeks. Only his eyes, green and sprightly, betrayed the character of his hidden face. That the beard was ginger, like his curly hair, dismayed Hoevler not in the least; he had long ago accepted with good humour his phenomenal bad luck in the matter of personal appearance.

"Hope I'm not interrupting, Joe," Farrant said apologetically.

"Candidly you are, but state your case anyway," Hoevler replied. His voice, high pitched and clipped, was a blend of the laconic and the jovial, mellowed by a mere trace of

Teutonic accent. Born in Leipzig, he had emigrated to America with his parents at the age of nine ; in this post-war era he was considered to be among the ten top-ranking ballistics experts in the U.S., and he was widely known as an authority on astronomy.

Farrant unslung his cameras. "Photographs. Stills right now, then cine when I can get the photofloods installed—say later this afternoon."

"Help yourself," Hoevler said generously with a wide sweep of his arms. "You'll find it bloody cramped. And keep me out of your viewfinder—I'm not photogenic."

"This is colour film, Joe. That beard of yours is tailor-made for chromatic rendering."

"So's my backside in this weather. I've got a king-size sweat rash. This is the only place I can scratch it in privacy."

"Scratch away," Farrant invited. "It should make a good human interest picture."

Hoevler uttered a good-natured obscenity, and concentrated on his work, manipulating a device that resembled a three-pronged screwdriver in a mechanical contraption that was probably, Farrant thought, part of the stabilising servo gear. He prepared the press camera and the flash gun and took a series of shots of the interior of the rocket from various angles, then Hoevler at work, and, finally, by mutual arrangement, of Hoevler scratching.

Slinging his photographic apparatus on his shoulder, Farrant said : "Item number two is rather more complex. I've been trying to learn more about how the Agnes business works. Miss Kinley gave me the story in polysyllabic words, but she said you could probably explain it in single syllables."

Hoevler's green eyes glittered sardonically. "How it works? That's a laugh ! I can tell you how it's supposed to work, but if this bloody abortion ever gets more than an inch off the ground I'll set fire to my beard !"

He stood up belligerently, arms akimbo. "Whoever saw a rocket without fuel tanks?" One arm swung in a demonstrative circle. "All this electronic junk. Waste of good income tax. I'd rather put my shirt on a reliable three-step liquid fuel fizzer any day."

"You serious?" Farrant enquired, mildly amused.

"Not serious, Russ. Just plain bloody insane. It's not my fault. It's this bastiferous island and the heat and this goddam

rocket and my itchy backside. You want to know how this lot is supposed to work. Well, I'll tell you. Sit down."

Farrant squatted on the hard metal of the platform, while Hoevler hovered over him, arms still clamped on his hips.

"Launching a rocket is like driving a car up a hill. You've got to beat the gradient, and that takes power and plenty of gasoline. But let's have a road made of rubber, and let's have a gadget that can grip the road from underneath and pull it down so that you get a dip in the slope of the hill. See what I'm getting at?"

"I think so."

"Okay, Russ. You can move this dip up and down the hill as you wish. Naturally you start at the bottom, with the downward slope of the dip under the wheels of the car. You release the handbrake. What happens? The car tries to roll forward into the hollow of the dip. Get it?"

"So far."

"But you box clever. You slide the dip up the hill, but all the time the car is rolling on a down gradient. You climb the hill by rolling down the side of an artificial dip. Dead crafty, isn't it?"

Farrant agreed that it was dead crafty. At last he was beginning to see the Agnes project in simple comic strip form, and it made sense.

Hoevler continued: "The car doesn't need any gasoline, but you can't make a kink in a road just by spitting on it. You've got to have power, and that means *power*. Once you've made the kink there's no problem. It stays put with just a little pulling. You might almost say the weight of the car keeps it there. Does that make sense to you?"

"Very good sense," Farrant conceded.

"I'm damned if it makes sense to me. Still, if you're happy . . ."

Farrant stood up, satisfied. The Agnes project had been accurately defined in cartoon terms, and he understood it at last. Whether it was a feasible proposition or not he didn't feel qualified to decide. Hoevler seemed sceptical, but Hoevler was always sceptical, and it didn't mean a thing. His mask of cynicism was in the nature of a defence mechanism.

"Thanks a lot," Farrant said. "You've cleared the air tremendously. One thing, though—if you have no faith in this project, why do you work on it?"

Hoevler scratched the seat of his pants with profound exasperation. "Why does anyone work on anything? I need the money, goddam it."

That wasn't true either, Farrant thought. Hoevler liked the job, and he had faith, too. But a team of bulldozers would never drag the truth from him.

"I'll be back later with the cine tackle," he said. "I'll try not to disturb you."

"Russ," said Hoevler, grinning, "I'm the most undisturbable man in this entire universe."

Farrant concluded that that was probably true.

VI

During the afternoon, Farrant, increasingly conscious of the weight of the gun in his pocket, made a special effort to seek out George Earl. The billet was still locked and from the viewpoint of the window nothing seemed to have been disturbed since earlier in the day. As Security Officer Earl had special responsibility for the stores, and it seemed likely that he might be over there. The storage block was about half a mile south of the domestic camp, and he went over in the jeep.

The three large huts comprising the general purpose stores were locked and deserted. Beyond them a thick concrete blast wall sealed off a restricted area in which certain specialised and potentially dangerous commodities were kept. There was, for instance, the fuel dump housed in the shade of a small hangar, containing the stacked drums of gasoline and diesel oil, and beyond it the throbbing prefabricated concrete power house in which two immense diesel engines generated electricity for the entire power and lighting requirements of the island.

Finally, more than a quarter of a mile to the west, a sunken concrete pillbox bearing a large red sign which warned: *Danger—Explosives*. Not that there was very much in the way of explosives left on Kaluiki now that the constructional programme had been completed: a few boxes of dynamite, perhaps, and some fuse material, and maybe nitrocellulose.

He did not venture beyond the blast wall, but satisfied himself that George Earl was not to be seen. He circled the general stores huts, but they too were locked. Finally he abandoned the search and returned to the rocket with the cine equipment, where, to the accompaniment of lurid remarks

from the irrepressible Hoevler, he shot the necessary footage of colour film. The time was five-twenty-five—time to return to the domestic camp, clean up, and report to the canteen for tea. Perhaps Earl would be there; perhaps the idiot had spent the day exploring the hill in search of the buried remains of a long sunken ship. Anything seemed possible.

But George Earl was still absent, and the others were beginning to comment on it. Strang in particular revealed his annoyance. "I like to know where the members of my staff are at any moment of the day," he stated flatly to Farrant. "And that applies to Earl more than anyone else. The Security Officer should be available to anyone, anywhere, at any time."

Farrant explained about the mysterious radar echo, and suggested that Earl might still be pursuing its source. He mentioned the theory of the rusted hulk.

"I don't care," Strang said, with the familiar supercilious timbre in his voice. "He is required to report his movements. When did you last see him, Farrant?"

"Last night, when we came back."

"Did he say he planned to return to the hill?"

"Not that I remember."

A pause—a pouting of the thin lips. "The moment you see him, tell him to report to me."

"I'll do that, Guy."

A few minutes later Kay entered the canteen, and he lost no time in joining her. For a tense instant he was afraid to meet her steady eyes, but when he did they were warm and welcoming. Quietly he said: "Hello, wonderful one."

Her smile started a fire in his abdomen.

They sat at a table. For a while they said nothing because there was nothing to be said. This was reunion after a long afternoon of separation.

Farrant was the first to break the silence. "Kay," he said, "soon it will all be over. The party will break up and we'll be returning to our respective homes."

"I'd thought of that," she said solemnly.

"I know so little about you. I don't even know where you live."

"That goes for me too."

"Me—New York."

"Not too far away, Russ. I'm Philadelphia."

"Thank God for that. Look, Kay, let's get together this evening. Let's talk, and talk—and talk."

"Fine, but I'm on duty until nine."

"Okay—after nine."

She eyed him for seconds, rather speculatively. "It's a date," she said.

A moment later they were joined at the table by Doc Youd, and the atmosphere of intimacy evaporated. But Farrant didn't mind. He had already started on a new count-down. Glancing at his watch he saw that the time was just after six. Zero minus three, he told himself. And, with no doubts whatever, he knew that this particular count-down was for him the most important of all. It could determine the entire future of his life.

Farrant abandoned filming for the rest of the day. He had no fixed schedule to work to, and his terms of reference were flexible enough and largely left to his own discretion. He took a cold shower in the ablution hut, but it wasn't cold enough; the water from the tank on the high trellis tower had been warmed by the sun and was unrefreshing. Back in his billet he shaved carefully, running the electric shaver over his chin again and again until all trace of roughness had been eradicated. In the mirror he sized up his reflection. A lean character, this Russell Farrant, almost gaunt, but with a strong chin and nose. Brown eyes that managed to look sincere even when they weren't. Limp dark hair, without a trace of a kink, but healthy enough and possessing a hint of natural sheen. What the hell could a woman like Kay see in him, or did she see him differently from what he was? And, for that matter, did he see her differently from what she was.

He filled in the time by checking through the exposed film packs in the storage rack, recording the dates in the log, and compiling a check list so that he could avoid duplication of subject. Some of the exposed films could not be accounted for, however, although, from their chronology, they had been exposed yesterday, probably during the evening. There was no entry in his pocket notebook to identify them, and his brain refused to yield any helpful memory. Puzzled, he marked them with a pencilled cross for future investigation. There were five of them in all—five colour pictures of what-have-you, awaiting development and reversal processing. They would have to keep on awaiting for days to come.

When the film packs had been satisfactorily tabulated, he lay on the bunk reading a two-week-old magazine, but soon wearied of its synthetic, angled journalese.

Restlessly he got up and went outside into the open air. The night was cooling, but the air still retained a residual warmth. In the darkness the huts of the domestic camp glowed pallid white under the quarter moon, like marble sepulchres. He walked to the edge of the lagoon and studied the faintly luminous ripples moving lazily across the black mysterious water. Surf whispered on a remote reef. The quiet air jazzed almost inaudibly to the attenuated music of a muffled gramophone in one of the huts, but he failed to recognise the tune.

Impatiently he returned to the billet and checked the time. Zero had gone—it was three minutes past nine. A sullen cloud began to depress his mind. All right, he told himself, not to worry. She's coming. It wasn't a deadline, and plus or minus a few minutes is neither here nor there. But the impatience remained, and he took to walking around the room, pursuing brooding thoughts into the twisting depths of his mind.

At nine-thirty he walked over to Kay's billet, only to find it locked and in darkness, and the sombre realisation that things had gone awry began to take possession of his consciousness. Moodily he retraced his steps to his own quarters, and there, magically, was Kay.

He took her in his arms and kissed her, but to his astonishment she pushed him away. For the first time he noticed signs of pale strain in her face.

"Russ," she said, and her voice was harsh and ghostly, "Russ, I didn't mean to be late, but something terrible has happened."

For no reason that he could define the image of George Earl's languid features, complete with pipe, flashed through his mind.

"There's been a murder," she said. "To-night, here, on Kaluiki."

"Who?" he asked starkly.

Her eyes were glistening with tears of anguish and horror. "Somebody strangled Hilde Bartok," she said.

"There will have to be a formal postmortem," Strang announced, "and because of the climate it cannot be long

delayed. Nor do I, at this stage, propose to interfere with the prescribed count-down procedure by breaking radio silence. The project will have to take priority. So, under the circumstances, Dr. Youd—if you have no objections . . .”

Youd hesitated before answering. “Well, there are objections. It isn’t in the best interests of medical ethics, nor do I particularly care to open up someone I knew as a very charming person and a good friend. However . . .”—he shrugged helplessly—“the situation being what it is . . .”

“Good,” said Strang crisply. “To-night, then, if you can arrange it.”

Youd nodded reluctantly.

The entire staff of the Kaluiki project, with the notable exception of George Earl and, of course, Miss Bartok, were assembled in the reactor room. To be accurate, Miss Bartok was in fact present, but no longer eligible for any kind of roll call. The shape of her, under the white sheet, lay grotesquely to the rear of the reactor control console. Strang had summoned the five remaining members of the expedition to an immediate summary investigation at the site of the killing, and Dr. Youd, after examining the body, had pronounced the cause of death as manual strangulation.

Strang said: “I hesitate to use the word murder, though there would seem to be no doubt about it. At this stage it is my task merely to collect evidence which may throw some light on this tragedy. In due course a coroner’s inquest will decide the issue of whether death was due to foul play or otherwise. I have called you all here, together, in this room, because one thing is only too clear. If Miss Bartok was, in fact, deliberately murdered, then the murderer must be one of us.”

“There’s one absentee,” Farrant pointed out. “George Earl still hasn’t put in an appearance.”

Strang frowned impatiently. “I’m growing rather tired of this Earl mystery. Has anyone seen him at all today?”

Silence. They all glancing questioningly at each other.

“Farrant, I believe you told me he returned to the hill to investigate some matter of a spurious radar echo.”

“That was a guess,” Farrant said. “I went with him last night, but we found nothing. I figured that maybe he went back this morning.”

Strang beat a clenched fist into his open palm. “Let’s get to the bottom of this business, Farrant. Did Earl take the jeep?”

“Well, no . . .”

"Which means he climbed the hill on foot, and has remained on foot all day, in the heat—and after a late night of exploring. That sounds improbable. Did he return to the canteen for meals?"

"Not to my knowledge."

"So he must have taken food and drink with him. Did anyone see Earl in the canteen this morning taking provisions?"

A subdued negative murmur.

"So presumably he left early if he left at all—assuming that he came back last night. You told me he came back with you, Farrant."

"That's right."

"Did he say anything about his plans for to-day?"

"Not that I can remember."

Strang sighed. "I'm afraid this doesn't make sense at all . . ."

Hoever said: "Maybe he's hiding out. Could be he planned to kill Hilde. God knows why, but could be."

"Could be," Strang echoed heavily, with a hint of sarcasm. "Anything could be. Well, Earl is a suspect too, and until we find him we can't make much progress. Farrant—first thing in the morning I'd like you to search the hill. Look for any clue that might help to locate the man. But don't waste time—you may be wanted for other duties during the last few hours of the count-down."

"Okay," said Farrant.

"Meanwhile I want to talk with each of you in turn, alone. I have to go through the formality of asking questions and taking statements. And I think we might start with Miss Kinley, to relieve her of the strain of waiting."

"Very well," said Kay quietly.

Strang glanced at the sheeted body. "I think—this—had better be removed to the surgery, if two of you would be so kind . . ."

Farrant and MacClennon stepped forward.

"Dr. Youd will instruct you," Strang added. "And if the others would wait in the ante-room, I'll call you in when you're wanted."

VII

They helped Youd to strip the body and prepare it for the autopsy. In death Miss Bartok looked quite a different person, her face stronger, though waxen, and her cheek bones more prominent. Bruising and an ugly crimson abrasion disfigured her throat, and there were dark marks of violence on her back, as if someone had used a knee to exert pressure. Dr. Youd, looking decidedly nervous and unhappy, drank several quick whiskies and chain-smoked during the preliminaries. Then he spread a white rubber sheet over the adjustable examination table and helped the others to transfer the body on to it. Finally he prepared his instruments, at which point Farrant and MacClennon left him to it, and made their way back to the reactor building to face Strang's interrogation.

For a long time in the warm darkness they said nothing, until MacClennon abruptly broke the silence. "It's all very well for Strang to play at being a detective inspector, Russ, but who's going to question *him*?"

Farrant eyed his companion curiously, but in the dark he could not clearly distinguish the expression on his face. In any case, MacClennon was a man not given to exhibiting his thoughts and feelings in facial terms; his craggy features, framed by shaggy brown hair and bisected by an irregular unkempt moustache, might have been carved from Scottish granite. Nor could one tell from the intonation of his voice what he had in mind, for, behind the tone-colour of the Scots accent, he usually spoke in a phlegmatic dead-pan fashion.

"Meaning what?" Farrant asked.

"Meaning that he's going to question us all as possible suspects—but who's going to question *him*? Or doesn't he class as a suspect?"

Farrant thought that one over. "Candidly," he replied, "I can't visualise any of us as suspects. I know I didn't do it. Kay couldn't have. Nor you, because Hilde was your colleague. Hoevler's not the type. Doc Youd—well, that's just fantastic. Same applies to Strang . . ."

"Strang was always in and out of the reactor room," MacClennon interrupted. "Always talking to Hilde. More than in the strict line of business, I thought."

"Not Strang . . . he, well, he's just not the type. For one thing, he's so wrapped up in his work."

"Work hard, play hard. I know a thing or two, Russ. I know Strang has been to Hilde's quarters at night."

"So what? Why should that make him want to kill her?"

"Why shouldn't he be questioned, too? That's all I'm asking."

"That's fair," Farrant remarked after a considerable pause.

"But who's going to do the questioning?"

"It should have been a public inquiry—everyone present, asking anyone whatever seems relevant."

"You're right, Mac. We can put it to Strang. He's a rational man, and I can't see him refusing."

"I'll put it to him," MacClennon stated. "I know him better than you, and I'm a member of the research team. I'll demand an open free-for-all inquiry tomorrow morning after we know the result of the Doc's post-mortem. I've got a feeling there's a great deal to come out yet, and Strang will have to do a lot of explaining."

They were nearing the reactor block. Farrant said: "There's still the question of George Earl. Seems to me he could be suspect number one."

MacClennon laughed shortly, sceptically.

"Or don't you think so?" Farrant asked.

"Russ, it wouldn't surprise me to learn that Earl is dead, too—and he's dead because Hilde's dead, or the other way round. It wouldn't surprise me if this whole blasted outfit blew apart at the seams. We've been living strained unnatural lives for months, and then the count-down starts, and the strain increases—until something snaps. If Earl is dead, then there's a killer among those who are left, and it could just as well be Strang as anyone."

"Yes, I suppose you're right," Farrant murmured thoughtfully.

Kay came out of the reactor building as they reached it, and Farrant took her to one side. "Look, darling," he said, "stay in your quarters and I'll be with you just as soon as I can."

She eyed him vaguely, rather distraught. "All right, Russ. I'll wait for you."

"Any developments—with Strang, I mean?"

"No," she said hesitantly, "except that he asked me a great many questions about you, Russ, and George Earl, as if . . ."

"As if what?"

"Well, that's just it—I don't know . . ."

Anger began to simmer quietly in him. He gripped Kay's arm fiercely and said: "See you later, honey. Don't worry about a thing." Then he hurried into the reactor building.

MacClennon was waiting patiently by the control console, smoking a cigarette. Farrant followed his example, lighting up and inhaling deeply even though he did not particularly feel the need for a cigarette. Impatience and resentment showed itself in his quickened movements and restless manner.

MacClennon said nothing, and in the end Farrant was forced to make conversation. He said: "Look, Mac—if you don't mind—I'd like to see Strang next, as soon as he's finished with Hoevler."

"You in a hurry?"

"Well—yes, I am. In any case, there's something I have to say to him while I'm in the mood."

MacClennon's eyes became speculative. "About you and Earl?"

"Yes. He's been asking Kay questions which are my business, not hers."

MacClennon tapped cigarette ash on the concrete floor. "I'm easy. You do your explaining first if it suits you better."

"Explaining?"

"About Earl. That's what you meant, wasn't it?"

"There's damn all to explain, Mac. If Strang is curious then I'm the one to satisfy his curiosity, not Kay."

"You're so right," MacClennon said affably. "All the same, looking at it from Strang's point of view, you went off with Earl last night and he hasn't been seen since."

"What are you trying to imply, Mac," Farrant said coldly.

"Nothing at all. It's just that—well, if anyone should know where Earl is, or what his plans were, you're the one. After all, you were the last to see him alive."

Farrant puffed quickly and neurotically at his cigarette. "How come you're so damn sure he's dead?"

"I'm not sure at all, Russ, but it isn't like George Earl to disappear for a whole day without saying a word to anyone. Could be he's just had an accident, broken a leg—something like that. All the same, let's be fair. Alive or dead Earl's missing, and it's reasonable Strang should ask questions."

"Okay, okay," Farrant said irascibly. "Only let him ask *me* the questions. What the hell would Kay know anyway?"

"Kay's a suspect, like all of us," MacClennon said shortly.

Hoevler came out of the ante-room a few minutes later, massively stroking his red beard. "Bloody business," he remarked to no one in particular. "Told him he ought to cancel the count-down and call in security. He nearly blew his top. Who's next? Sherlock Strang is waiting and he's not in the mood for playing his bloody fiddle."

Farrant went in, closing the door behind him. Strang was standing near the shuttered window of the ante-room, hands clasped behind his back, his face darkly sour and brooding. He gestured towards a chair, but Farrant remained standing, still smoking his cigarette.

"We're getting nowhere fast," Strang said curtly. "So far there is nothing at all to show who could have killed Miss Bartok. But we have to continue with what I might call a process of elimination."

He paused for a moment, surveying Farrant remotely, as if watching him through a telescope. "Perhaps, Russ, you would like to account for your movements this evening, since you left the canteen at tea time."

"Sure," said Farrant. "I went back to my quarters. I washed and shaved and changed. I read a magazine."

"That's rather vague. Both Hoevler and Miss Kinley were able to provide corroboration—in fact, Hoevler was engaged in radar checks from rocket to control with Miss Kinley's assistance. Did you see anyone, or talk to anyone?"

"No."

"Did you remain in your quarters all the time?"

"No—I went out for a few minutes."

"Where?"

"Oh, I just took a walk—over to the lagoon."

"What time was that?"

"Around a quarter to nine, I guess."

"How long did you stay out?"

"Just a few minutes. The truth is I was waiting for someone to call and got sort of impatient."

"Who were you waiting for?"

"You might as well know. It's no secret. Kay Kinley."

"I see." Strang frowned, pensively, as if pursuing an elusive idea through the labyrinths of his mind.

"I went out again around nine-thirty," Farrant volunteered.

"I looked in at Kay's quarters, but she wasn't home. When I

got back to my billet, she'd arrived. She told me about—Hilde. We both came straight over here."

"All the same," said Strang, "you can't *prove* that you were in your quarters most of the evening, or that you walked as far as the lagoon . . ."

"No, I can't, but it's the truth."

"Russ, I want corroborated evidence."

"Meaning you don't want the truth?"

Strang scowled. "Of course I want the truth, but it has to be verifiable."

"You calling me a liar, Guy?"

Strang walked forward very slowly, hands still clasped behind his back. He advanced to within a yard of Farrant, then stopped, rocking back a little on his heels. "Russ," he said, not unkindly, "don't misunderstand me. You are a journalist by profession. You of all people should know the necessity for corroboration in evidence."

He unclasped his hands and pushed them deeply into the pockets of his khaki-drill slacks. "A member of our staff has been murdered, and one of us must have done it. There is nobody else on the island. My first task, obviously, is to sort out those who have what we might call a definite alibi . . ."

"You mean that I don't come into that category?"

"Not so far, Russ."

Farrant threw his cigarette stub on to the floor and ground it into extinction with his foot. "How about you yourself, Guy? Have *you* got an alibi?"

The ghost of a smile distorted the line of Strang's lips. "I was expecting that, but not from you. Yes, I have an alibi, though, like you, I should be hard put to prove it. Fortunately I don't need to prove it, for it was I who discovered Miss Bartok's body."

"I suppose that let's you out," Farrant said sardonically.

"Not necessarily. But even you agree that the guilty party would hardly be the first to raise the alarm."

Farrant shook his head. "He might figure it would look better that way."

"There is one other thing, Russ. During the evening I wrote a long report on the first twenty-four hours of the count-down. From the condition of the ink it would be a simple matter for the police to determine exactly when it was

written, and just how long it took to write. I think *that*, as you say, would let me out."

"Thanks," said Farrant amiably. "You've reminded me that I did some writing too—logging film shots. It may not account for all my evening, but it certainly covers part of it."

"Then let's concentrate on the part that's not covered. You say you went out twice. Did you visit this building at all?"

"No."

"What were your relationships with Miss Bartok?"

"Formal."

Strang returned to his former position near the window. "I take it your relations with Miss Kinley are—let us say—less formal."

"You take it right."

"Since when?"

"Since yesterday."

Strang looked at him intently for a moment. He said: "Everything seems to have happened since yesterday. Earl disappears. You establish some kind of relationship with Miss Kinley, and Miss Bartok is killed. And in some way it seems to centre round you, Russ."

"It's not apparent to me."

Strang swung himself awkwardly into a chair and placed his hands firmly on his knees. Determination was beginning to glitter in his eyes, as if, Farrant thought, he were in the middle of a long mathematical equation, not quite certain whether it could be resolved into simple integers, but stubbornly bent on pursuing the problem step by step to solution or stalemate.

"Sit down," Strang ordered. "I want to talk to you about George Earl."

Farrant sighed and sat down, feeling in his pocket for cigarettes. "Go ahead," he murmured wearily. "Ask your questions. I can do no more than tell the truth."

It was midnight plus, but somehow he didn't feel tired, and he hoped Kay was still awake. Now that the initial shock and horror of Hilde's death had subsided he felt vaguely bored by the proceedings, and resentful of Strang's self-assumed role of investigator-in-chief. Admittedly the George Earl business was something of a mystery, and a mystery connected (but only casually) with Farrant himself, but that was certainly no reason for projecting suspicion. And yet Strang was clearly suspicious. The evidence, such as it was, was purely circumstantial,

but such evidence could be damning. The missing George Earl, the hint of some kind of intimate relationship with Kay, an evening without an alibi during which a girl had been murdered. To hell with Strang, he thought. Why should I worry? I told the truth and I'm in the clear.

As he neared the domestic camp he saw a dark figure coming towards him, and presently he recognised the squat shape of Doc Youd—a tired and preoccupied Doc Youd. Farrant intercepted him by catching his arm, and Youd reacted as if he had been assaulted.

“For God’s sake, Farrant—I didn’t even see you . . .”

“I’m big enough,” Farrant pointed out. “Finished the autopsy?”

“After a fashion. I didn’t dig too deep—just enough to confirm the cause of death.”

“Was it . . .?”

“It was. There a distinct thumb and finger impressions.”

Farrant sighed. “Why should anyone want to kill her, Doc? It doesn’t make sense.”

“I may have the answer to that, too,” Youd said quietly.

“But I suppose I ought to make my report direct to Strang.”

“Strang may be asking the questions, but he’s on the suspect list, too,” Farrant stated. “We’re all equally involved in this business, and it may help to clear the air if we all know the relevant facts. All we’ve got so far is a murder with no apparent motive.”

“I discovered that Miss Bartok is about eight weeks pregnant,” said Youd. “How about that for a motive?”

Farrant considered for a moment. “Possible, but remote. After eight weeks she couldn’t be too sure . . .”

“She wouldn’t have to be, Russ. In any case, it points to a very intimate liaison with one of the men here. Who knows what kind of intrigues are involved?”

“You mean the old eternal triangle? It doesn’t seem to fit, Doc—not here, among scientists.”

Youd laughed briefly without humour. “You may not believe it, but scientists are also human, and beneath the veneer of technology they behave in much the same way as the rest of humanity. Technical training doesn’t change character. Add to that the unusual conditions of living here on the island—six men and two women just waiting for the count-down to start—the tropical climate and the general sense of lassitude we all get from time to time. Anything could happen.”

"And has happened," Farrant added.

"I'd better get on, Russ. Is Strang still in the reactor block?"

"Yes. Right now he's cross-examining MacClennon—or vice versa."

"See you later."

Farrant continued on his way towards the domestic camp. The light was still on in Kay's billet, but the lattice blind had been dropped over the window. He tapped on the door, and it opened almost instantly.

"I thought you'd changed your mind, Russ," she said.

He went in and sat on the edge of the bunk, while she stood watching him a little anxiously. "Strang gave me a long grilling," he explained. "Seems I was rather stupid in not arranging a foolproof alibi for this evening. Then there's the business of George Earl. Altogether Strang is acting as if someone put a flea in his ear."

"Perhaps someone did?"

"Doc Youd has the biggest flea. During the autopsy he dug up what looks like a motive."

"Such as?"

Farrant told her the substance of his talk with Youd, then went on to outline the trend of Strang's questioning. "What seems odd to me," he continued, "is the way Strang is pursuing this thing—almost as if he had forgotten about the count-down."

"He's in a difficult spot, Russ. The sane thing to do would be to halt the project and call in the police and security. But it might be weeks before conditions are right for another count-down. On the other hand he can't sit back and do nothing at all about the serious business of murder. He's trying to compromise by continuing with the count-down, and investigating Hilde's death at the same time."

Farrant nodded absently. "You may be right, but Youd's evidence is going to establish a definite link between Hilde and one of the men, and MacClennon thinks he knows which one."

"Well—which one? Or is it a secret?"

"No secret—but it's speculative. According to Mac, Strang himself has been having clandestine meetings with the girl."

"Not Strang," Kay said sceptically. "He's married anyway."

"So's Mac, and the Doc, and Earl for that matter. Marriage isn't a cure-all. Nor could you assume that only the single men are potential suspects."

"But Guy Strang . . . ?"

"What's so impossible about it? Anyway, I'm not accusing Strang of anything. MacClennon may be jumping to wrong conclusions. On the other hand it's another item of data, and when we've got enough we may be able to sort things out."

He glanced at his watch and saw that the time was already after one a.m. Reluctantly he stood up. "It's late, Kay—and we've both got to catch up on our sleep."

She came closer to him, and he took her in his arms. "I'm sorry our evening got loused up, darling, but we can pick it up again tomorrow."

"Let's promise not to talk shop tomorrow," she suggested.

He nodded. "We'll pretend this evening never happened. No Strang, no Earl, no count-down, no murder. Just you and me."

"I'd like it that way, Russ. It will make such a change to be an ordinary person again, and to talk about ordinary things . . ."

"About you and me."

"Yes. We don't know a great deal about each other, do we?"

"We know the one important thing, Kay—that we're right for each other."

She smiled mischievously. "How do you know that?"

"Intuition. And because I love you."

She became suddenly serious. "Are you sure, Russ?"

"Sure enough to follow through."

"For a man that's not difficult," she murmured, with a half smile. "I think I'm sure enough too. Ask me tomorrow."

"It is tomorrow," he said.

"Not for me, Russ. It's never tomorrow until I've slept."

He kissed her gently, and was about to repeat the manoeuvre with more ardour when a curious sound disturbed the stillness of the night—a remote, hurried tap-tapping. He released her, eyeing her questioningly, and listened. In a moment the noise became identifiable—it was the sound of running footsteps, growing louder.

Kay crossed to the door and opened it. The light from the room cast a long luminous rectangle on to the dusty grey of the

ground outside. She waited there until the running figure came into close-up and was illuminated. Farrant, still inside the room, recognised the pink, breathless, bearded face of Hoevler. He went over to the door.

"Anything wrong, Joe?" Farrant asked.

"Everything's wrong!" Hoevler managed to blurt out. "The whole goddam island's gone stark crazy. There's a homicidal maniac loose, Russ!"

"What are you trying to say?" Farrant demanded.

"I was over at the rocket doing a late stint when Strang phones through at the control point. Come over, he says—it's urgent. So I go over, but he's not in the reactor room, and I look round, and he's with MacClennon near the edge of the lagoon, and they're looking at something . . ."

"Go on," Farrant said starkly, sensing what was coming next.

"It was Doc Youd," Hoevler continued. "Half in the water, half out. It looked as if he had stumbled in the dark and knocked himself cold—only it wasn't an accident, Russ. Someone had beaten his brains in with a rock."

Kay swayed unsteadily, and Farrant gripped her arm.

"He's dead, of course," he said quietly.

"You ain't bloody kidding!" Hoevler replied harshly.

To be continued

To be published shortly in book form by Hodder & Stoughton Ltd.

British Convention—Easter

Britain's 1959 science fiction Convention will be held over Easter, March 27th to 29th, at the Imperial Hotel, Temple Street, Birmingham 2 (200 yards from New Street and Snow Hill stations). Room rates are 27/6 and 30/- a night, including breakfast. Apply direct to the hotel for reservations.

Membership and entrance fee to the Convention is 12/6 (5/- British Science Fiction Association members) and applications should be made in advance to Mr. R. Richardson, 9 Courtiers Drive, Bishop's Cleeve, Gloucester.

Saturday, March 28th is reserved for amateur discussions and activities, Sunday the 29th for serious discussions. There will be a science fiction and fantasy art exhibition as well as the time-honoured auction of science fiction literature, plus many other items not yet finalised.

This is another story of a 'talent'—and you might well argue that it isn't science fiction—but where does one draw the line between s-f and fantasy? Everyone has their own definition but no two people ever quite agree.

THE TROUBLE I SEE

By John Brunner

When Joe Munday was four years old he ran screaming from behind a truck. The truck was a large and heavy one; it was parked in the steeply sloping street which was Joe Munday's playground and the front garden of his home. Moments later the driver let his brake off, and his clutch failed; the truck rolled twenty feet backward before he could jam the brake on again and clamber white-faced to the ground.

When Joe Munday was seven, he was staying with his mother's sister in a country cottage; he tore loose from her and ran out into pouring rain. As his aunt shouted imprecations after him from the doorstep, lightning struck the house and blinded her for life.

When Joe Munday was thirteen, he refused to go with the gang he hung around with when the leader wanted them to enter a deserted warehouse. They met a man in the ware-

house. Three months later the papers headlined the scandal : five boys sent to reformatory for peddling drugs to their school friends.

When Joe Munday was fifteen he began to filch petty sums of money and make bets with them. He was never caught, because every bet he placed came up, until the local book-makers refused to have anything to do with him. He still managed to return the stolen cash and keep the proceeds. It was worth it.

" Good boy, that Joe Munday," people said. " Never gets in trouble !"

And he didn't. So when he was seventeen he was bright enough to know that he had something a little—extra.

Perhaps the " something extra " matured about then ; at any rate, the things which happened began to multiply to the point at which even someone with less than Joe's astuteness would have had to scratch his head and wonder. Joe, being clever enough to figure the odds on such matters as getting caught before he returned the money he had 'borrowed' had sufficient intelligence to understand that—somehow—he could tell when trouble was coming, and avoid it.

At first, it had only been danger. To his life, essentially. It had grown rather more subtle, as if he had learned that there were other sorts of trouble one could get into aside from the risk of death.

It was hard to believe, even for him, and he was on the inside. So one time, he ignored what his talent told him, and the result frightened him. That was the last time in his life Joe Munday wanted to be afraid. The sensation made him sick.

And so, at the age of seventeen, Joe Munday looked at his reflection in the mirror, and grinned. He had dark hair, and he dressed very sharp, and aside from the pimples which he kept trying different sorts of skin cream for, he wasn't bad looking. Good looks, and the knowledge that he need never be afraid again, sounded like a fair amount of capital for a man starting out in the world.

But—exactly how do you set about investing capital which people don't know you've got ? That problem puzzled Joe for some time. The good looks aspect would take care of itself—there was a girl on the next street who assured him of that. But the other—that was different.

He decided to go out and think it over.

He was on his way to the soda fountain when he changed his mind and turned in at the bar on the corner instead. He had been there once before, when he had been taken by a former acquaintance, two or three years older than himself, who had moved out of town and come back to spend an afternoon bragging about his progress up in the world to his old friends. Joe Munday had managed to tag along that time. This time, he told himself, he was going alone—and that was the way it would be from here on in.

The bartender knew him—of course. Everyone in the neighbourhood knew most other people. But he wasn't prepared to make trouble over Joe being under age. Joe knew that. He wouldn't have come in if he had been. Maybe it was partly due to the self-confidence he could see in Joe's manner—self-confidence which didn't need to assert itself to be unmistakable.

So Joe had a beer. He didn't like beer very much, and in fact he would probably have preferred a milk shake, but milk shakes belonged to yesterday. To help hide the fact he wasn't getting it down very fast, he took it to a booth on the far side of the bar, and cradled it between his hands as he looked around.

There weren't many other people in here at this time of day—it was mid-afternoon. So few, in fact, that after a quick look around the bartender broke open the till and began to check the cash. It had an interesting look about it; Joe studied it carefully. It was more money than he had ever had in his life, even in the days when the bookies were taking his bets.

When he had finished, the bartender put some change back in the till to keep as a float, and went and called the proprietor from in back. The boss sniffed unenthusiastically at the small piles of paper and coin.

"Stash it with yesterday's," he directed grumpily. "I'll bank 'em both tomorrow—not worth tramping around to the bank for that much."

The bartender nodded. Nobody was looking but Joe, and Joe was sipping his beer. He packed the cash in a kraft paper bag and took it through the back. A customer yelled for him as he went through the door, so he hurried his business, did not bother to close the door, and gave Joe a clear view

of the cashbox he was putting it in and that box's relation to the window of the room.

Joe turned a newborn idea over in his mind. With relish. Tentatively he submitted it for the approval of his talent, and the talent agreed wholeheartedly.

They suspected the bartender automatically, and though it was never pinned on him, he was fired on the strength of the suspicion. Nobody dreamed of Joe Munday in connection with the theft, of course—"Good boy, that Joe Munday. Never in trouble in his life. Not like some I could name."

It had always made Joe's mother proud to hear people say things of that sort about her boy. But the real pride was yet to come. There was a certain amount of heartbreak, too, but it was worth it for the envy of the neighbours when a few weeks later Joe lit out of the district and let it be known that he had decided to improve himself.

The money had been burning his pocket too long, but of course every time he was tempted to spend any of it in the immediate vicinity his talent opened one warning eye and looked at him meaningly. So he walked past.

But uptown he wasn't known, naturally. And it was uptown he would have to head. There, he could spend money without questions being asked; he consulted his talent, and that was why he made his move.

Step one called for a visit to a clothing store. He hesitated outside, studying a very sharp suit indeed, but he had a cold feeling about it, and when he looked around he saw that it wouldn't quite go with the district. He stifled his liking for the sharp tailoring remorselessly, and bought himself a conservative outfit which bespoke good taste. The effect pleased him; so did the service he got from the attendants in the store, who also saw that self-confidence in his eye and realised without admitting it to themselves that here was someone to be reckoned with.

Step two was the booking of a room for himself. He calculated dismally the rate at which the rent would diminish his small fortune; then his talent bolstered his indecision, and he made a note of his new and rather better address.

Step three was to go smelling for money.

It wasn't difficult. He'd got the feel of it now. The big cars weren't so good a guide as the small foreign cars, and that made him understand why his talent had turned down

the sharply tailored suit. Once you got on the level he was intending to reach, you stopped having to worry about ostentation. Joe didn't happen to know the word ostentation, but he had an excellent idea of what it meant.

With his talent, naturally, he had no difficulty in deciding where he should turn for his first boost upwards in the world. He considered several possibilities, turning them down with regret, and settled for a man called Sarmer. There were several good reasons for the choice. One was that Sarmer was rich—but then so was everyone else he had considered. Two was that Sarmer didn't have a foreign car, though he could have afforded the most exclusive model in the world. He was prejudiced against foreigners and correspondingly prejudiced in favour of local boys making good. Three was that Sarmer, though he had a daughter—and an uncommonly attractive girl at that—had no son, and desperately wanted one. Only he couldn't have one. He hadn't long to live.

He made himself as much a part of the neighbourhood as he could—quiet, distinguished, tasteful—and walked boldly to Sarmer's residence. Since his talent still informed him it was a good idea, he rang to announce his presence.

Sarmer saw him, and liked the look of him. Joe consulted his talent every time before he uttered a word, and the impression he gave was favourable from all angles. He was in. Where he had always wanted to be. And one of these days—not long from now—Sarmer would say :

"Joe, you're a pretty good boy." (Modest interjected utterance of thanks). "No, I mean it. Say, I've been thinking. Y'know, I'm not long for this world." (Shocked denial of such a possibility). "Dammit, you know it as well as I do. Well, I've been wondering who could look after my affairs when I'm gone. And I think I could do worse 'n hand 'em over to you."

Only between now and that day there was a period of waiting, of containing oneself in patience. Certain things made it harder, too. There was Julie Sarmer, slim, blonde, exquisite and expensive, and it cost him a deal of pillow-punching and tossing at nights to refrain from making overtures as if she had been the girl on the next street back home. But naturally his talent warned him that to do so would be to bring him to disaster. Julie regarded him only as a protege of her father's ; she didn't guess that he was going to be her father's

heir. So they spoke coolly, although after a couple of months they were living in the same house.

He didn't go back home, not even to see that girl on the next block. It would have been inadvisable. He heard—deviously—that the girl in question was pregnant, and realised exactly what that would have meant in the way of obstacles. He breathed a silent prayer of thanks and forgot about her.

He was coming to figure now that his talent worked in two directions. One indicated impending disaster through actions not his own, like the failure of the clutch on that truck when he was four. The other indicated that he was letting himself in for trouble. In either case, of course, he had to figure a way out of the trouble for himself. But it wasn't difficult.

For instance, out driving—Sarmer loaned him a car as soon as he asked for it. Wanting to tear down a beautifully cambered high-speed curve at ninety, he would listen to his talent and surprise any passenger he might have by idling down to thirty. And then around the bend there would be a truck jack-knifed across his lane. That sort of thing got him a reputation for being a brilliant driver.

His acquaintances moved in a different sphere now ; he was regarded as a bit of a curiosity, but since he had old man Sarmer's approval, he was accepted. Sometimes. This driving ability gained him the respect of a hot-rod fan, who proudly asked him to try out his Mercury-engined souped-up special, allegedly capable of a hundred and eighty on the flat. Joe refused. He didn't give an explanation, just refused. Angrily, the hot-rod fan insulted him and jumped in and drove away. He got three miles and was running at over seventy when a front tyre blew out and he smashed through a wall, wrecking the car and killing himself.

Nobody knew about that, except Joe. And the hot-rod fan. But he was dead.

It did cross Joe's mind that maybe his refusal had made the dead man so angry that he couldn't control the car after the blow-out. But he hadn't actually known that the tyre would fail ; he had only sensed that trouble lay that way and he could avoid it by not getting into the car.

Joe changed during the next three years. He found it more difficult than he had expected. There was a hell of a lot to learn, which he had never dreamed about. Making money the way Sarmer did involved a considerable amount of thought.

He had had a misty idea of employing his talents in speculation as he had done in betting. But just as the only way he could make bets come up was to use stolen money which he had to return or land in reform school, he found speculation with Sarmer's money didn't work. He got round that one by the simple dodge of using his own money and then getting Sarmer to back him on the deal he selected. That way, he stood to lose both the money he'd put in it and Sarmer's confidence and enthusiasm.

Three years. He'd never really bothered with newspapers before, except maybe the sporting section. Now he had to learn about markets, and then he had to learn how the foreign situation might affect the markets, so he had to learn how to use hints in the news columns, rumours spread by loudmouths and sheer natural guesswork to influence his speculation. He did learn—for his talent prevented him from making errors. The situation could have struck people as fantastic, a boy scarcely out of his teens in Sarmer's confidence, rapidly turning into his right-hand man and with every chance of being his successor, but naturally Joe did nothing which would have made them think it *was* fantastic. When they thought it over calmly, they had to admit that it was really quite a reasonable proposition.

And so the day came when Sarmer handed Joe a drink and told him to sit down and hemmed and hawed and finally said that he thought Joe was a pretty good boy. Excitement almost got the better of him at that point. Not quite. If it had, he would have been scared of the consequences, and Joe had decided never to feel scared again.

Sarmer hadn't intended to do this quite yet, but his doctors had given him an ultimatum, and the yearning for a son which had haunted him for years had precipitated his action. Joe was in.

Anyone else certainly *would* have felt scared at the prospect which now opened up. Joe didn't.

Someone who did was Julie Sarmer, and she said as much, but her father firmly forbade her to question his decision, and pretty soon there wasn't much she could do about it, because Sarmer died.

The evening after they buried him, Joe consulted his talent and saw no trouble looming ahead, so he pointed out—quite tactfully—to Julie that whereas she was now merely a minor heiress with limited and sharply defined income (it was a sore

point with Joe that the defining point hadn't been set lower, but after all she was Sarmer's flesh and blood), he was a young man with places in front of him where he was going, and she could if she pleased have a slice of his cake, on his terms. He hadn't had any terms like that since the girl on the next street from home—his talent had kept warning him of trouble when he had felt inclinations towards girls in his new social circle—and the strain was getting hard to bear.

So she slapped his face and walked out.

He took it comparatively philosophically, and discovered without much trying that he could make good the loss. That satisfied him for some months.

At first, everything was lovely. He was now in a position to employ his talent to the fullest, for if he put a foot wrong he was really getting himself and no one else in trouble. Consequently, he touched and things turned to—well, maybe not gold, but to securities and bonds and extensive holdings. A very satisfactory state of affairs. Only it didn't last.

Everything was going nicely on the markets side, for there was a state of international tension rapidly growing. Consequently, the markets responded, as new government contracts were placed and the businesses which benefitted saw their shares climb in value. Joe was on to these rises as often as not ; he could even employ his talent on these now, for Julie had taken legal steps to question his right to inherit her father's holdings, and unless he administered the estate capably he stood to have it taken away from him.

But one morning he woke up feeling sick.

It wasn't physical sickness. It was something he hadn't experienced for so long he was hard put to it to recognise it. He was afraid.

At first he didn't believe it. Then he resigned himself to it and grimly began to fight against it. But he found himself growing steadily more desperate as the day progressed—for he could not establish the source of the fear.

It rose in intensity, too, as time went by, presumably in direct ratio to the approach of the event he was afraid of. Twenty-four hours after it set in, it was already so bad that he couldn't employ his talent any more—the minor increase caused by making a wrong choice on the market was lost in the overwhelming violence of the greater fear.

"I knew Munday wouldn't last!" his rivals said jubilantly; Julie heard the news and smiled, and notified her lawyer. Joe was past caring.

All that he could establish was that the danger was to come from above. And he couldn't get away from it by going down. You couldn't walk straight into the bowels of the earth to hide. If he envisaged such a possibility, the fear still loomed. From above. That was all that was clear. It would come from above.

Distractedly he stared at newspapers, seeing the news that two days ago would have pleased and reassured him. War fear mounting; new government arms contracts; terror abroad in the land, on which to feed.

From above. He thought wildly of a bomber in flight, and then of the bomb it might let fall. There was no getting away from that, was there? For the first time he considered exactly what all these warnings of war scares meant. They meant that the city would be obliterated; they meant that if he took a plane and fled to an island in the Pacific or a mountain-top remote in Asia he still wouldn't get away. He felt the waves of fear erode his mind like a sand-castle as the tide comes in.

Warning: he would have to give people a warning. He went to the telephone; who could he call? Julie, at least—he owed her something.

She was with her lawyer; he rang her there and gasped his terrified words into the mouthpiece. She didn't seem to understand properly, but he had no time to explain further. He had to run.

Like an animal fleeing before a forest fire, Joe Munday ran from the room. He ran down steps, into the street. At that moment a man cleaning windows high overhead let go of the handle of his bucket, which fell. Fifty feet it managed to travel before it struck Joe Munday on the head and laid his brain bare to the curious sky.

"War?" said the lawyer at that exact moment. "Man must be crazy!"

Among the first people to reach the spot was a newsboy. He kept control of his sickened stomach long enough to put a poster over Joe Munday's ruined head. The poster said "War Scare Abates. Government Backs Down."

The aliens had a most effective method of getting rid of the conquered humans—create a situation where they were forced to commit race suicide. What the humans needed was a secret weapon or something the aliens didn't have which would turn the scales.

SQUEEZE BOX

By Philip E. High

Landon paused at the door, frowning, thin brows making a narrow V above his nose. He realised that he took this side of his duties too seriously and it was getting him down. All his duties required of him was a simple, direct statement of fact and nothing more. Why did he always have to make it such an arduous and exhausting mission? Did he have some over-developed paternal instinct or, possibly, some of those qualities which might, in a past age, have turned him into a minister of religion? But you couldn't walk in on a chap and say: 'You're going to die,' and then walk out again, could you? It was too brutal. "Life these days," he told himself, bitterly, "might be cheap but one needn't make it sound like a hand-out."

This case, too, had certain aspects—hell, Marion was just another man or was he? Too likeable, too strong, too much character in an age when conformity was literally a survival clause. Besides, Landon told himself, firmly, Marion had killed a man and that was wrong in any age.

Landon bent his head a little beneath the word "Lounge," his hand clenched, ready to knock and paused again. Beneath the daubed paint were the clearly discernible words "Bomb Bay" and, as always, they made him feel uncomfortable.

The *Stellar Maid* had been a cruiser, years ago, rakish, perhaps, dangerous-looking until, like humanity, she had taken a beating and been clubbed into order.

Landon sighed, knocked briefly and entered. "Good day," he said, formally. "I am Captain Landon—I'm afraid it's my duty to tell you where you're going."

Marion, lounging in one of the chairs, pursed his lips thoughtfully. "There's only two places I could be going as things stand—the asteroids or Leinster. My sentence was Lethal Deportation." He grinned faintly. "Does it matter which or do I have to guess?"

Landon said, curtly. "Please don't joke, deportation doesn't mean either imprisonment or survival."

"I gathered that when I was sentenced." Marion seemed unperturbed. "I suppose it's a harder way to die?"

"You're going to Leinster to hunt zipcats," said Landon stiffly. He paused and added in a softer tone. "If you kill one, it means a reprieve."

Marion lit a cigarette. "Obviously there is a very big catch and it smacks mightily of Greek mythology." He exhaled smoke. "Enlighten me, what are zipcats?"

"An animal peculiar to Leinster." He hesitated. "An animal which, the government has decided, is definitely, and of necessity, top secret."

Marion nodded and said: "I see," meaningly. He frowned at the floor. "And I hunt it?"

"Yes."

"With my bare hands?"

"No, you may have any weapon you wish."

"What's the catch?"

Landon avoided the other's eyes. "It's invulnerable."

Marion laughed softly. "Now I've heard everything. This sounds more like mythology than ever. Your name isn't Charon by any chance?"

Landon stung, said, "No, it damn well isn't." In his heart, he supposed, in a way, he was. He was ferrying men, damned men, not across the Styx but across space to a planet that was almost as bad. He forced the thought from his mind, slid back a panel exposing bottles and glasses. "Drink?"

"Thanks—brandy please." He watched Landon almost fill the glass, accepted it and sipped. "Done this often?"

"Too often." Landon gulped, not caring to remember the men who had lived for the four week journey in this very lounge.

Marion held the glass up to the light. "Good stuff this—pre-invasion?"

"Yes."

Marion sipped again. "I killed a man," he said in a casual voice. "Worse, I killed the wrong man. Want to hear about it?"

"If it helps." Landon kept his voice neutral.

"Oh it does." Marion paused then said, deliberately, "I got a kick out of it—it was a collaborator."

Landon said: "Oh," noncommittally.

"It was in a food queue." Marion was lighting another cigarette and his voice was now expressionless. "This louse started barging his way to the front, waving his priority card and knocked down a kid." He moved his hands slightly. "I like kids, this one was only a toddler, maybe two years old, a girl. He didn't stop, didn't care, just barged on—" Marion exhaled a jet of blue smoke.

"And you killed him?" supplied Landon.

"Not exactly. I hit him, unfortunately I hit him too hard." Marion sighed. "A hundred years ago it would have been a manslaughter charge but today they have to look around to find laws which don't carry the death penalty. I suppose it's a kick-back from the armistice terms, something has to be done about the population problem." He laughed bitterly. "Generous terms I believe they were called. They took the best parts of Earth for themselves, seven of our colonies and gave us one of their own planets in return." He scowled suddenly at Landon. "One we can't use."

"Who told you that?" said Landon sharply.

"You did. There is an invulnerable animal called a zipcat which obviously makes the planet untenable, otherwise we should be shipping our surplus population out there for all we were worth." He flicked ash on the floor with his finger tip and grinned wryly. "Sounds like a tough job—killing zipcats. If our technically superior conquerors couldn't clear them up, it seems pretty obvious that we can't."

Landon said stiffly : " I'm sorry, but I think it better that a man knows what's going to happen to him."

Marion rose. " Don't feel sorry for me, Landon, there are worse positions. I could be Arkroyd or his successor and that's a really nasty way to die."

Arkroyd ! Landon nodded to himself. Saint Arkroyd ? Arkroyd the mass murderer ? Arkroyd the puppet ? Arkroyd, Elected Representative of the Human Race. Yes, yes, he agreed with Marion, whatever Arkroyd was, he was dying the hard way.

Arkroyd had been lithe but now moved like an old man. His face had been clear and smooth but in two years of office, strain and bitterness had carved lines into his cheeks and a premature senility of movement.

" Mousac Benik," he said, steadily. " If you take more of our world my people will die."

Benik made a gesture with a long, six-fingered hand. " We have given you a world to which they may migrate."

" You failed to colonise it."

" Not failed, Arkroyd, the venture would have been too costly. Again, we were not in the desperate position which you so constantly protest. You must devise ways and means to make colonisation possible."

Arkroyd said : " My God," under his breath and watched the knuckles of his hands whiten almost detachedly. " With a technology inferior to your own ?" he asked.

" I have already reminded you, your need is desperate, ours was not." He rose, twining the orange robe tightly about his body. " We are setting up a military base in area 67 as soon as equipment comes to hand. All buildings and power installations must be removed or demolished in this section of your world before the new year." He paused, looking at the bent human with faint contempt. " You understand ?"

" I understand." There was a world of weariness and resignation in the tired voice.

Arkroyd sat unmoving at his desk long after the alien had gone. More land, more cities, a piece here, a piece there, taking away the peoples' living space slice by slice. What did Williams say they were calling it ? Ah, yes, a squeeze box. He had a vague recollection it was a slang term for some sort of musical instrument but was not certain. One thing he did know was that if you put animals in a cage and kept

making the cage smaller, there would come a time when the animals began to eat each other. They hadn't reached that yet but it would come.

He looked about his office—squeeze box was right. At a push the room might hold four people and *that* for the race's elected representative. A desk which swung out from the wall, bed which pulled down from ceiling, toilet and washing facilities which folded into the floor.

Overcrowding, everyone in each others pockets, sleeping in relays, working in relays, staggered meals, rising tuberculosis and declining morals.

Something had to be done and his predecessors, perhaps more ruthless than himself, had set the machinery in motion. They had re-introduced the death penalty and used it to save the race from complete collapse. It was applied at first with reserve but sheer necessity had forced the government to extend it to almost every form of misdemeanour. It was a capital offence to hoard, to steal food, to deal in ration cards, to breed without state permission, to spread rumours likely to cause alarm and despondency—

Bluntly they had to kill people behind a facade of law and order to save the race. It was expedient that a few million should die to save the race.

Arkroyd put his head in his hands and something deep down inside him whimpered like a child. There was no revoking the law now, no way out ; to let the population increase, or even remain static, would lead only to starvation, riots and subsequent plague. This, too, was another form of expediency from which the race might never recover.

The squeeze box. Yes, if you put animals in a cage and kept making it smaller, there would come a time when they started to eat each other. Arkroyd knew, as his predecessors must have known, that the conquerors need to instal equipment and erect vast defensive devices was pure fabrication. This was a planned policy of extermination but what could he do about it ? Defiance would only bring about one of the ruthless pogroms which would cut down their chances even more.

The conquerors programme was almost childlike in its simplicity and was being applied over a period of time with ruthless efficiency. Race extermination was, after all, a messy and tiresome business. The easiest and best method, obviously

was to create a situation from which the only escape was self-destruction. That way the job was done for them with the vanquished obligingly burying their own dead. It was all so simple, just make a cage and squeeze.

Arkroyd was beating his clenched fists on the metal desk and couldn't feel it . . .

The garrison on Leinster lived underground, they had bored into the face of an immense cliff and sealed the entrances behind them with foot thick metal doors.

The officer receiving Marion was bitter, ill at ease and felt like an executioner. It made him look at Marion almost with dislike.

"I suppose I'd better show you the pictures we have." He jerked his head. "This way."

He led the way down a narrow square tunnel, lit infrequently by thin unshaded solar tubes. Despite the whisper of air-conditioning units, the tunnel felt chill, dank and smelt vaguely stale.

"To save answering in detail the obvious questions," said the officer over his shoulder, "I'll answer them now. Yes, we have tried air assault but to do that sort of thing successfully you have to find the enemy—we can't. And no, for the same reason, we have not used solar bombs or nuclear dusting. For either to be effective we'd have to cover the whole planet which would make it untenable for us when we'd finished. Lastly, I don't know if the creature is really invulnerable but it's smart enough not to be at the receiving end of anything you throw at it. It just so happens that wherever you attack or bomb, you're too late, it's never there." He stopped abruptly and held open a door. "In here. I won't bother to put on the light, there's a chair just to your left."

Switches clicked, a screen filled with milky light and slowly began to clear.

"This is it," said the officer. "The only picture we have."

Marion saw a creature vaguely resembling a jaguar. It was bluish in colour with an inch wide silver streak running down the centre of its back. Marion surmised it was about twelve feet in length and weighed about a quarter of a ton. The legs were short but looked jointed and the fur or pelt looked gleaming and a little oily rather like that of a seal.

Switches clicked again and the picture vanished to be replaced by another.

"Trained assault troops," said the officer. "Supported, as you will observe, by armoured vehicles and air cover."

Marion leaned forward in his chair. The picture showed an advance over an open plain of waist-high feathery yellow grass. Air support was considerable, armoured vehicles proceeded and covered the flanks, while fast, lightly armoured scout machines made swift reconnaissance far ahead of the main body. The troops themselves were well trained and obviously experienced but they never stood a chance. One of them, close to the camera, spun dizzily on his feet and pitched sideways before Marion, staring at the screen, realised that any sort of action had begun.

He watched unbelievably as man after man went down and did not rise. The manner of their deaths, too, was not pretty. Some were flung high in the air, falling limp and helpless as if already dead. Others appeared to be suddenly wrenched asunder or crushed as if by an enormous weight. An officer, directing operations from the turret of an armoured vehicle, was abruptly headless. The torso slowly disappeared leaving the limp hands flapping grotesquely above the rim of the turret.

One of the smaller vehicles staggered uncertainly, rose on one track and rolled over on its back.

Marion felt his nails biting into the palms of his hands, he wanted to stand up and shout: "What the hell's happening? Where are the damned things?" True the grass was waist-high and would easily conceal the animal but how could it strike down men without revealing itself? "What is it—invisible?"

"Oh, for God's sake, man!" The officer's voice was both angry and defensive. "Do you think we'd be going through this bloody business if we *knew*?"

Marion said, evenly: "How do you know it *is* the zipcats?"

"It can't be much else." The other's voice was listless now. "We've found the marks of their bodies, spoor, bloody claw marks. I'm afraid there's no doubt about that side of it and then, of course, there's the noise."

Marion realised he had been hearing the noise for some time but had dismissed it as some defect in the recording wire. It was a curious sound, a flat slapping report which was somehow incomplete and trailed away into a rending noise like abruptly torn canvas.

"Zipcats," said the officer. "That's how they got the name, we assume it's some sort of call, like a lion roaring, for example."

Marion said : " Yes," only half hearing. On the screen the orderly well-disciplined advance was rapidly degenerating into a rout. Men were firing blindly and wildly at nothing and already two vehicles had fallen or been driven into concealed pits.

The screen blanked suddenly, whitely empty and then slowly clouded to darkness.

The officer cleared his throat and said with false confidence : " Of course there may come a time when one man finds the answer." He cleared his throat again nervously, feeling once again like an executioner. " Have you any particular weapon in mind ?"

Arkroyd rose and bowed stiffly as he had been taught. He felt like a buffoon a puppet who moved when the strings were pulled. " Yes, Mousac Benik ?"

The alien loosened his cloak and sat down. " I am here to inform you that our installations will require far more space than we at first supposed." He pointed to the wall map with a long stick-like finger. " All of this." The finger described a circle.

Arkroyd felt the muscles stiffen beneath his skin. " But that's nearly a thousand square miles." Despite himself his voice was almost a sob. " It's impossible." His mind raced insanely trying to calculate how many millions he would have to crush into the already overcrowded cities. No time to build, no time to dig, the hammocks in the dormitories already less than an inch apart and winter coming—Oh God, Oh God !

" Impossible ?" The alien looked at him strangely. " What is impossible ? We require the demolition of some buildings, the removal of installations, such a task is not beyond the capacities of your people, surely ?"

Arkroyd was thinking : ' I could kill him now. I could reach out from here and break that pipe-stem neck with my bare hands but what good would it do ? Reprisals, pogroms, more millions uprooted and some other poor devil sitting in this same chair, dying as he sat or, like many before him, fingering the gun in the desk drawer and finally blowing off the top of his head.'

The alien folded his hands, intertwining his fingers so that they reminded Arkroyd of thin saffron-coloured worms. "The impossibility, Arkroyd, lies with you, it is a block in your own mind due to emotional disturbance and confused thinking. An application of the laws of expediency would leave your mind clear to perform the duties your position imposes. Like all your race you allow emotion and sentimentality to obscure your vision and influence your judgment." He rose, tightening his robe. "Demolition must be completed by the first day of the new year."

Arkroyd's bow was purely reflex as the alien left, his conscious mind barely noticed the empty chair and the closed door. The new year ! It was fantastic. An area so large, he hadn't the labour or the machines to do it, there was no time even to plan the demolition. Machines producing synthetic foods must come first and room *made* to operate in space needed for the population they must uproot. They could, perhaps, dig even deeper into the ground but that would mean splitting a labour force that was already inadequate for demolition.

His mind became curiously numb and sluggish as if it had revolted of its own accord and refused to juggle with statistics. Perhaps it was a sort of safety factor but whatever it was, it was occurring with greater frequency each week.

He pulled open the desk drawer and stared dully at the squat blue-black weapon lying casually on the white, never used, pre-invasion note paper. All he had to do was to put it to his head and squeeze the trigger. It was all so easy, six of his predecessors had done it as if to prove its simplicity and the suicide weapon had never been removed. Perhaps, after all, it was not a weapon at all but an instrument of mercy to be resorted to when the strain became too much. Selection for Representative was not dependent upon the mass of the people but the findings of a computer which based its selection on taped psychological information recorded at each yearly medical examination.

When he had been selected Arkroyd had had dreams of improving the lot of his people, now his dreams were escape-fantasies and he knew it. Secretly he called them "If-only" dreams. If only they could find a weapon powerful enough to support an uprising— If only the enemy would fall sick— If only someone would find a way to destroy zipcats—

On Leinster it was raining, dully, steadily, with a kind of leaden persistence which, Marion felt, was somehow symbolic of his state of mind. The garrison was already five miles behind him and, at first, he had carried his heavy repeating weapon alertly in his hands ready to fire at the first sign of movement. After a time however, his arms began to ache and the pictures he had seen kept repeating themselves in his mind. Slowly he had become filled with a sort of weary acceptance of his position and the virtually impossible task before him. He had slung the weapon over his shoulder and gone plodding on filled with an oriental fatalism tempered slightly by typically western irony. If something was going to strike him down without a chance, why pass his last hours lugging that damn heavy thing around ?

He was passing now along a natural path, or animal track, between slender, immensely tall trees with green trunks. Overhead thunder rolled steadily and almost continuous lightning rippled across the leaden roof of cloud. Even as he walked a blue-white finger reached downwards and, somewhere ahead of him, he heard a tree go crashing groundwards.

'I could always be struck by lightning,' he thought wryly. 'Save the zipcats a lot of trouble.'

He rounded a bend in the trail and stopped. "Just my damn luck," he said aloud.

Completely blocking his way was the wreckage of one of the immense trees. It was blackened, split and, in places, still smoking faintly. It was, quite obviously, the one he had heard fall some moments before. The point was that there was no way round it or through it, the surrounding trees too dense to make a detour. He sighed. Might as well sit down and let the zipcats find *him*.

He extracted a cigarette from under his plastic cape, cupped his hand against the rain and managed to get it alight. He inhaled deeply, watching the blue smoke crawl round his hand then, not ten feet away, something moved.

He wasn't ready, he knew he wasn't ready. He fought a wild battle with himself trying to unsling the gun from his shoulder. Somehow it had become entwined in the cape and some part of the mechanism gashed his ear badly as he struggled.

By the time he had disentangled himself, everything was still again. Cautiously, the weapon ready, he peered into the tangle of branches. Somewhere, half seen but close to the

ground two round golden eyes stared back at him and something whimpered piteously.

"Well I'll be damned," he said and laughed shakily. "It's only a little thing, no bigger than a rabbit."

He pushed some loose branches to one side with the end of the gun and peered closer. The animal was a little ball of silver fur, almost cuddly and, to him, curiously pathetic. Its back legs were neatly trapped by the fork of a heavy branch and it was obviously incapable of releasing itself.

It was characteristic of Marion that his first thought was to try and release it. Hell, it was a pretty little animal, you could make a pet of it, and the huge golden eyes were kind of appealing like a spaniels' he had once seen on a zoo tape as a kid. No harm in having a go, was there? If a zipcat got him in the middle of it, that was just too bad.

Marion began to speak to the animal soothingly. "All right, not going to hurt you, just try and hack through this branch to get closer. Then, if I can get the butt of this gun under that fork, maybe I can . . ."

It made a strange picture, an Earthman labouring and cursing to release a trapped animal on an alien planet in the steadily falling rain.

"Ah, now if you can just pull clear little fellow."

The creature seemed to understand, twisting its body from side to side until, finally, it struggled free. It came tamely to his side and rubbed itself, as if in gratitude against his legs. Marion stared down at it, frowning, there was something curiously familiar about the shape of the animal's head. A great number of Terran animals changed colour on reaching maturity, didn't they? With a sick feeling inside, Marion realised he had freed a baby zipcat. He looked towards his gun which he had leaned against a tree and the thought of reaching for it died in his mind. He was the centre of a narrowing circle of full-grown zipcats . . .

Benik strode into Arkroyd's office, his yellow eyes blazing and his cloak literally billowing behind him. "Only two weeks remain and the demolitions I ordered have not begun—explain this." His voice, reedy and high pitched by Earthly standards, rose a trifle. "I will not tolerate further excuses, Arkroyd, and I demand an immediate explanation. You will note I have two guards in attendance, they are here to escort

you to immediate execution if I am unconvinced by your explanations."

Arkroyd stiffened in his chair but did not rise. When he spoke he omitted the courtesy title of Mousac. "We do not intend to undertake further demolitions, Benik." He paused slightly but continued before the other could interrupt. "Further, I must ask the immediate withdrawal of your occupation forces from this planet and all worlds previously colonised and developed by my race."

Benik came closer to the desk and stared down at the other, frowning. "You are not mad—signs of mental disorder are all too obvious when they occur in your people. I must assume, therefore, your insolence is sustained by private information of your own. I would remind you, however, that representative Harvey displayed similar arrogance some four years ago. He believed he had come into possession of a weapon capable of equalling the technical differences between our peoples. I was, however, soon able to demonstrate that his so-called technical advance was not only known to us but already obsolete. His show of defiance, needless to say, was swiftly deflated."

Benik sat down slowly, his saffron face cold and reproving. "You will no doubt recall," he continued, softly, "that representative Harvey was publicly executed in a contractor cubicle as a warning to his successors." He drew his robe tightly about his body and smiled thinly at the Earthman. "I am waiting, Arkroyd. Regale me with the details of this wonderful weapon."

Arkroyd looked at them, the supercilious alien in the small chair, the two blank-faced guards in their tight black uniforms standing rigidly against the wall. He wanted to remember this moment for its own sake, the last seconds of arrogance before he chopped the damn ground from under their feet—blast them.

His finger reached out and touched a button beneath the desk. "It isn't a weapon, Benik," he said, softly. "It's an ally."

The door slid open behind him and he saw Benik stiffen in his chair.

"That—animal!" The alien's face was blotchy.

"It's a point of view as to whether it is an animal." Arkroyd's voice was insultingly conversational. "It can reason, communicate with its kind and has a high intelligence quota."

"*That*—intelligent." Benik stirred uneasily in his chair.

"Intelligent enough to distinguish between expedience and—" Arkroyd paused, meaningly, "—altruism." He leaned back in his chair. "A technical race is apt to judge progress and culture by the yardstick of its own achievements, Benik. No technical progress, no artifacts, therefore, no intelligence. Such reasoning is a mistake; the intelligence may be on a different level altogether. Our ally, for example, in certain aspects of reasoning, is far in advance of both our peoples."

The alien was slowly recovering from his initial shock, he stiffened and when he spoke his voice was shaking with fury. "You will pay dearly for this insolence, Arkroyd. You dare to assume superiority on the basis of such a supposed alliance." He smiled, unpleasantly. "Many creatures on many planets are dangerous in their natural surroundings, deprived of these advantages and faced with modern arms—" He made an abrupt sign to one of the guards.

Arkroyd never quite saw what happened. There was a sudden rending sound, a wild rush of wind, a choked reedy scream and silence. The guard lay crumpled in the corner, hand gripping his undrawn weapon, with one side of his head caved in. The animal which had entered and curled up at the side of his desk was still, apparently, in the same position. As he looked down at it, the creature turned its head slowly and looked up at him with bland golden eyes. Was there, somewhere deep within them, a hint of amusement? There was. The animal shifted slightly and began to lick a bloody paw with a long pink tongue.

'Zipcat,' thought Arkroyd. Only it wasn't a cat in the true sense, anymore than a man was an ape despite certain physical similarities. The creature had achieved a high order of intelligence without the asset of opposing thumbs. It had no technology, no artifacts, but by sheer determination had discovered a substance on its home world which was sensitive to mental emanations. It could therefore be said to have some sort of written language and a recorded history. The creature's real genius, however, lay in its control over its body. Naturally agile and tremendously fast, it had used its intelligence to increase these survival factors to an unheard of degree.

Arkroyd smiled inwardly. It was all so simple when one understood. The creature was not invulnerable but its intelligence had increased its natural assets. Bluntly, the creature

moved so fast its movements failed to register on the senses. A slow motion camera would, of course, have revealed the creature's capabilities but such an explanation had occurred to no one. Even if it had, taking a picture would be as difficult as killing it, the creature was too fast. In a single bound it could, and did, exceed the speed of sound and human senses were incapable of registering its movements. It sounded fantastic until one remembered that a dragon fly was capable of speeds in excess of fifty miles an hour. Why not a larger creature, aided by intelligence, travelling for short distances at even greater speeds?

The zipcats' thick pelt secreted some sort of natural oil which made such speeds possible without injury. How fast could man move, he wondered, given the mental control and hair-triggered reflexes of his ally? He laid his hand on the animal's head and was immediately aware of understanding. The means of communication between the two races was contact. Arkroyd didn't pretend to understand it, it was a phenomena which just happened, presumably some sort of telepathy.

He became suddenly aware that Benik was addressing him in a low angry voice.

"You dare to dictate terms to me because this creature has killed one of my soldiers? You may, of course, order it to kill me but you have still the resources of my home world to contend with, not to mention the trained occupation force."

Arkroyd smiled tightly. "Benik, you once gave me a brief lecture on the laws of expediency and the emotional state of my mind. I'm glad I ignored your advice because I'm going to enjoy this, every damn minute of it." He rose. "Easy conquests induce carelessness, Benik, you were foolish enough to group your fleet in one sector of Earth only, the ships neatly laid out in orderly lines. My labour force, you will be interested to know, queued for the privilege of digging a long and very deep tunnel. It was the first demolition job since the occupation which really appealed to them." Very deliberately he leaned forward and pressed a fat black button on his desk.

Through the window the far horizon lit suddenly with an intolerable blue-white brilliance and, seconds later, the building shook to a distant and immense thunder.

"That," said Arkroyd, pleasantly, "was your fleet." He looked at the alien's suddenly stricken face without pity. "Your remaining troops and colonists have now only to contend with us and the five hundred zipcats we brought back from Leinster. I suggest, Benik, an immediate and unconditional surrender."

"You assume my government will countenance such an arrangement? If so you are greatly mistaken."

Arkroyd smiled. "I was waiting for that. Some weeks ago you filched a great number of our art treasures for your museums and ordered us to deliver them to your home world. Those ships took a long time getting there, Benik, they made a call on the way—guess what those ships really delivered." He shrugged. "Oh sure, maybe superior technology will find an answer in the long run but for a while there'll be chaos, trying to destroy invulnerable killers in your major cities and production centres. Your government will be unable to mount any sort of counter-offensive for at least two years. Your forces and weapons are here and in two years, let me tell you, we shall have bled your technology white and, possibly, improved on it. When your ships come bursting out of space, thirsting for revenge, they'll run into something that will knock them cold." Arkroyd sat down slowly, tired now but confident. "You are predators, Benik, technically ingenious animals who have made expedience a God and you are now incapable of worshipping anything else." He reached into his desk and tossed a document before the alien. "Conditions of Surrender, you have exactly twenty minutes in which to read it and give your answer."

The alien picked up the paper slowly, his hands shook and a nervous tremor twitched at the corner of his mouth.

Arkroyd saw that he was not only beaten, he was cowed and on the verge of becoming servile. They'd won, really won, man was free again and out of the cage. In a few months there would be a monster celebration, the reclaiming of lands and the restoration of cities. Suddenly an almost hysterical laughter bubbled inside him. There would be music, too, damned if there wouldn't, a massed band of squeeze boxes . . .

THE AGES OF ICE

The ice-age cycle consists of a 250 million year period of which there have been five and we are still in the weakening grip of the fifth glacial epoch. But scientists know very little about what causes them although there are several schools of thought.

By Kenneth Johns

Take a little liberty with your imagination and stand off a few million miles in space, looking down on the green and brown, cloud-stippled planet spinning lazily below. Speed it up, so that the seasons change in a blur of colour. Watch as vegetation changes colour with winter and summer, the seas darken and brighten and the great storm belts move irresistibly across the face of the globe.

Watch as a few thousand years pass, and gradually you will see the bright greens overcome by a dazzling white. The brown of mountain ranges will turn to blue-white, and the long endlessly marching rivers of the glaciers will pour out from the poles and from the mountains until all but the areas paralleling the equatorial band will be white and silent and ghostly.

Slowly, as you stand and watch, slowly will the last glaciers of our present ice epoch recede, slowly will the Earth emerge again into the long, dry, multi-million year summer that is her normal state.

This is a picture of the future ; not the past. We are still in the great glacial age that four times already, this epoch, has sent the tongues of ice licking out to inundate the lands under thousand-feet thick layers of crystalline death. Four times they

have advanced, and four times temporarily retreated—and are still retreating. But one day they will regain their strength for their final onslaught on the fertile lands now owned and cultivated by Man.

Glacial epochs are mere seconds on the solar scale, and the reasons for their coming and going, the mysterious forces that unleash millions of tons of ice upon the world, are still the greatest unknown in the scientists' understanding of the geological history of the Earth.

The word history is used here, in place of prehistory, not only because man's writings have all so far taken place in the context of an ice age, but because history is the written record of the past, and the story of the ice ages is written in the rocks and sedimentary deposits of the Earth for all who will to read.

Many times at intervals of approximately 250 million years the genial climate of Earth has been swept away by the alternating, short periods of ice and interglacial warm periods. We can distinguish five such glacial epochs in the sediments of the Earth and we know that the onset and deterioration of the glaciers occurs simultaneously over the whole globe.

Our present glacial epoch began about a million years ago, and it is something less than 20,000 years since the glaciers retreated from Europe—the important 20,000 years in which *Homo sapiens* has built his civilisations.

To explain the ice ages, scientists have to solve several problems. Firstly, they are faced with a cycle that reaches a maximum every 250 million years—astronomical on any time scale, and possibly astronomical in origin. Secondly, they have to explain how the complex variations occurred in each glaciation period, resulting in the glaciers forming and melting in five distinct ages. Thirdly, they must discover the mechanism by which the cycles result in a lowering of the average temperature of the Earth.

So far, they have failed.

But not for lack of trying.

A subsidiary point is involved : the cycle of glacier building coincides with a cycle of mountain formation. Just as glaciation periods are short and widely separated in time, so are the great upheavals that built the vast mountain ranges we see as peaks worn down to a fraction of their previous heights. Each mountain-building crisis heralds a glacial era, for always the ice lags behind the thrusting upwards of the tortured earth. This

fact must explain or be explained by any glaciation theory that is to be accepted.

A fall in temperature of the Earth could arise from outside causes in two ways : by a decrease or a slight increase in energy received from the Sun. This apparent paradox is explained by the latter possibility raising the temperature of the tropics more than the solar regions. More water would then evaporate from the oceans, there would be a large increase in the cloud coverage of the Earth and the quantity of water precipitated as rain and snow. The new clouds would reflect sunlight back into space so that the heavy snowfalls in winter would build up as glaciers on high ground. In turn, the ice of the glaciers would reflect more sunlight, and the overall effect would be a cooling of the Earth.

'Outside' theories include the idea that the Sun goes Nova every 250 million years, and cools off quickly. The thousand-fold increase in solar radiation was thought to result in enormous amounts of water evaporating and then precipitating as snow during the cool period following the Nova. This is on a par with the postulate that a small satellite of Earth was torn to pieces by tidal forces to create a Saturn-like ring that reflected a large part of the Solar radiation, and so cooled the Earth within its shadow.

There have also been suggestions that wandering stars have approached close enough to our system to raise the terrestrial temperature. All these ideas are negated by the absence of any evidence of such a cosmic catastrophe in the sedimentary deposits.

The cause of the ice ages need not be a gigantic, earth-moving phenomenon, it is sufficient for the delicate balances of the atmosphere and hydrosphere to be disturbed so that the resulting interplay of forces takes millenia to settle down to normal quiescence.

Such an idea is the basis of the 'greenhouse' effect of carbon dioxide. Liking the Earth to a greenhouse, which traps heat by letting the visible light in through the glass and then refuses to allow infrared radiation of the heated interior to escape—(plastic greenhouses, incidentally, do not have this same effect as do glass greenhouses)—this theory uses the carbon dioxide of the atmosphere as its glass.

Of the solar radiation reaching the Earth, part is absorbed by the air and part reflected back by clouds, dust and snow-fields.

More is absorbed by the soil and the oceans. The warm land and water radiate infrared back into space to maintain the dynamic energy balance. But—carbon dioxide is opaque to much of the infrared band. The theory, then, held that an increase in carbon dioxide, vented, say, from volcanoes in sufficient quantities to increase the percentage in the air, would trap and prevent loss of heat by infrared radiation, the resulting rise in temperature of the Earth as a whole would free more carbon dioxide from seawater, where vast quantities are stored in solution, and so the process would continue and intensify.

Conversely, excessive absorption of carbon dioxide by plants leading to formation of coal and lignite, would cool the Earth.

Some scientists claim that this greenhouse effect is grossly overrated, since water vapour is just as good an absorbent of infrared as is carbon dioxide, and there is a great deal more water around, so that the change will be slight compared with any interference by carbon dioxide, alone.

We should soon know. At our present rate of burning fossil fuels, we will have increased the carbon dioxide content of the atmosphere by 2% within fifty years, quite enough to show up any such effect and prevent the next ice age.

Several ideas were tied together when it was suggested that the earth upheavals prior to a glaciation resulted in very high plateaux being formed, well above the greater part of the atmosphere in which the greenhouse effect takes place. Thus the land up there could lose heat more readily by radiation, it would cool and collect much snowfall which would march down and extend its rule over the neighbouring land. Aided by clouds which reflect sunlight, the loss of heat by reflection from the ice would further cool the Earth and so another ice epoch would begin, and last until the plateaux were worn down below a critical size and level.

Though ingenious, this theory fell down because it can be calculated that the maximum average cooling effect could be only 10 degrees Fahrenheit over the whole Earth, whilst we know that it actually amounted to 30 degrees F. Sad, too, in another way. Highly reminiscent though they might be of the vast plateau cut off and forgotten in Conan Doyle's *Lost World*, if the postulated plateaux were to be above the carbon dioxide, greenhouse-effect level, then no animal life as Conan

Doyle envisaged it could exist at those rarefied heights. But it would have tied in so nicely . . .

This plateaux theory also fails to explain why there is the time lag between the plateaux formation and the onset of glaciation. Various reasons given for this include the fact that the oceans are enormous heat reservoirs taking a long time to cool as the Earth loses more radiation than it receives, and also the theory that the plateaux first formed are smooth, massive domes. As the domes weather they are eroded into jagged peaks and their loss of mass enables them to float higher in the semi-liquid interior of the Earth.

Another suggestion to explain the ice fluctuations brings in radioactivity. It was suggested that radio-active heat from the Earth's interior was trapped beneath the glaciers' ice and melted their bases. This meant that the glaciers spread quickly into warmer areas and soon melted and vanished. Once the pendulum had begun to swing in favour of melting, the glaciers completely disappeared and the radioactive heat could then escape easily from the bare ground. This, of course, then became chilled so that the cycle repeated itself. It is now realised that radioactivity plays only a very small role, as compared to solar radiation, in heating the surface of the Earth.

Other scientists looked to volcanic dust in the air as being the important factor, explaining why ice formed after geological upheavals, but giving no explanation of why the long hot periods between ice epochs were much warmer than now—and why they were dry periods with little rainfall and clouds, but much water in the air. There seems no basis for the theories that the Earth's atmosphere was much denser than now in the millenia gone by or that the Moon radiated heat.

Disproved theories include those that concentrate on the freezing of Europe by diversion of the Gulf Stream. This unfortunate event might, or might not, have occurred by the opening of a channel in the Isthmus of Panama—this did occur several times—by a change northwards in the coastline of South America, by an increase of the North-East Trade Winds and the formation of a barrier in the guise of a continent in the middle of the Atlantic.

More recently, it has been theorised that the glacier cycles depend on the slipping of the Earth's surface over the interior so that the North and South poles appear to wander. When the

North pole is in the Arctic, an open ocean, almost entirely surrounded by land and covered by ice, little water can evaporate. There can then be no growth of glaciers in the northern hemisphere. The situation changes entirely when the Arctic is free of ice. Heavy evaporation from the open ocean leads to heavy snowfall over Asia, Europe and North America—and, the glaciers are on the march again. In time, sufficient water is removed from the oceans to lower their level hundreds of feet. Then warm water cannot flow over the rocky undersea barrier that divides the Arctic and Atlantic oceans. Shut off from the circulating warmth, the Arctic freezes and the glaciers, deprived of sustenance, slowly melt, the oceans rise and the whole procedure is repeated. As we are now in the beginning of an interglacial period, it is interesting to note that the oceans are rising—enough in historic time to drown cities along the shores of the Mediterranean and North seas. Paradoxically, according to this theory, when the Arctic begins to melt—we are in for the rest of the ice age bad weather.

The long hot summers between glacial epochs, the theory continues, are times when the North pole is in large oceans. Here there are ample and powerful currents to prevent freezing of the surface and there are no large land areas surrounding the pole to become the focii of glaciers.

Other planetary movements suggested to explain the build-up of ice include variations in the eccentricity of the Earth's orbit, variations in the angle which the Earth's equator makes with the plane of its orbit around the Sun and the precession of the equinoxes. The latter clearly shows up in alluvial deposits as a 21,000 year cycle ; but it is probable that even a combination of all these variations would only explain the short term changes in glaciation—not the onset of a whole ice epoch.

One theory, popular thirty years ago, was that the Sun is a variable star, occasionally increasing its output of radiation.

This theory has recently been resurrected, using the vitality of an idea that the products of fusion in the Sun's interior prevent escape of radiation so the Sun contracts and becomes hotter so that energy escapes. Then the Sun expands and cools below its normal temperature.

The authors of this theory calculate that it would require an 8% fall in the Sun's output of radiation to explain the glaciers,

whilst an 8% increase would create the long hot periods. They also believe that the Sun is gradually increasing in temperature so that Earth will be uninhabitable at the tropics, with a temperature of 100 degrees Fahrenheit in one hundred million years. By that time, it is reasonable to suppose, if Man is still around on his home planet, he will have developed some method of keeping cool in a heatwave.

As a corollary to the theory that the sun is growing hotter, they suggest that the Sun and Earth were once very much colder than they are now, so that the first ice ages that occurred were taking place on an already frozen planet. Later, life must have come into being many times and then have been extinguished by the intensely cold grip of the ice age freeze-ups every 250 million years. This process of life and death could have gone on for a very long time—astronomically speaking—until there were areas of the tropics where life could still survive whilst the rest of the planet was ice bound.

The rhythm of the ice growth and retreat has to be explained as a cycle within the cycle. The primary cause of variable output of solar radiation has also been blamed on the debris of space—the interstellar gas and dust that fill the spaces between the stars with a fine drift of particles, being sucked by gravitational forces into the Sun and continually feeding it. If Earth herself occasionally passes through such clouds, the infalling particles would increase the temperature of the Sun's chromosphere by their kinetic energy and the result would be a rise in temperature of the Earth and an increase in glaciation, through the effects of increased water absorption.

The effect of these gas clouds on stars has been clearly seen in the Great Nebula in Orion, where cool stars have the colour of very hot stars due to the amount of kinetic energy they are gaining by collisions with gas and dust particles. Variations in degree of glaciation on the Earth can be attributed to random variations in the density of the clouds.

Most people have the idea firmly lodged in their minds, when the ice ages are under discussion, that the Earth began life as a red hot ball, which then cooled enough to allow life to begin. This life then gradually underwent the long and painful transition from little jelly-like things swimming in near-boiling seas, through monster reptiles well pictured in children's books, through the Coelocanth which has hit the headlines recently, through apes and monkeys and so, finally, to man.

Just at the end, this popular misconception says, ice covered all the world, killing off the dinosaurs and allowing those huge lumbering behemoths of mammoths to wander about, with little men skipping in the middle distance brandishing spears tipped with stone.

That this is a rather natural fallacy of progression is understandable. If some of the current theories are correct, and they can with our present state of imperfect knowledge be disproved no more easily than the older well-established theories, the Earth did not start life as a molten ball. The picture of the ice ages so firmly embedded in the popular mind tells the story only of the last million years or so : there were ice epochs extending far back in time, each greater than the one in which we now are, because the current ice epoch is not yet over.

The ice ages of popular literature, the well documented glacial and inter-glacial periods, however, are to us the most important of all, because there occurred in them the rise of the Primates leading to Man. There is a well endowed body of evidence which seems to prove that the encroaching waves of ice played a decisive part in getting man off his hands and knees, through the drastic changes in vegetative distribution, down out of the trees, and through the dire prick of necessity of making him build fires to warm himself and of using stone tools to scrape skins to clothe himself and his mates and children.

The theories of how and why the ice epochs occurred are now of academic interest ; but an ice age is a problem that our successors on this planet will one day have to solve—perhaps sooner than we think. Will we be ready to fight the Ice-Gods, or will we, like our ancestors, hide in caves or retreat before the chilling touch of the ice ?

A time of stress can be a time of strength, and the strength of fusion energy will be needed to break the eternal cycle of heat and cold, of sand deserts and snow deserts, to create the nearest approach to a perfect climate that Man can devise.

It is possible, one day, that the Earth will be renowned throughout the Galaxy, not so much as the planet of the birth-place of Man, but as the Garden Planet of the Galaxy.

Kenneth Johns

The chances of finding another inhabited world are remote—of meeting another spaceship in space, with human-type occupants, even more remote. Author Chandler takes the long arm of coincidence and produces his usual first-class story. As he says in the story, "If a coincidence can happen, it will."

CHANCE ENCOUNTER

By Bertram Chandler

We paid off on Faraway, having brought the old *Epsilon Pavonis* all the way across the Galaxy to hand her over to her new owners, Rim Runners Incorporated. The Commission's Branch Manager booked us in at the Rimrock House, one of the better hotels in Faraway City. All that we had to do was to wait for the arrival of *Delta Bootes*, in which vessel we were to be shipped back to Earth. The services to and from the Rim Worlds are far from frequent and none of the big passenger liners ever call there; they are not planets that one would ever recommend for a vacation. There's that dreariness, that ever-present sense that one is hanging by one's eyebrows over the very edge of the ultimate cold and dark. The cities on none of the Rim Planets are cities, real cities, but only overgrown—and not so very overgrown at that—provincial towns. The people are a subdued mob who take their pleasures sadly and their sorrows even more sadly. Somebody once said that the average Rim World city is like a graveyard with lights. He wasn't so far wrong.

Delta Bootes was a long time coming. She was delayed on Waverley by a strike, and then she had to put in to Nova

Caledon for repairs to her Mannschenn Drive unit. Some of us didn't worry overmuch—after all, we were being paid, and well paid, for doing nothing and the Branch Manager was footing our weekly bar bills without a murmur. Some of us worried a lot, even so. In the main, with one exception, it was the married men who were doing the worrying.

The one exception was Peter Morris, our P.R.O.—Psionic Radio Officer to you—our bright young man from the Rhine Institute, our tame telepath. Yet he was single and so far as any of us knew, had no girl waiting for him on any of the colonised worlds or on Earth. But if there had been a first prize for misery he would have won it.

I liked Peter. During the run out we had formed a friendship that was rather unusual between a telepath and a normal human being—or, as the average graduate of the Institute would put it, between a normal human being and a psionic deficient. I liked Peter, I suppose, because he was so obviously the odd man out and I have a strong tendency towards being odd man out myself. So it was that during our sojourn on Faraway we developed the routine of leaving the others to prop up the bar of the Rimrock House while we, glad to get away from reiteration of the bawdy jokes and boring personal anecdotes, wandered away from the hotel and through the city, finding some small, pleasant drinking place where we could sip our beer in relative peace and quiet.

We were in such a place that morning, and the drinks that we had imbibed had done nothing at all to cheer Peter up. He was so gloomy that even I, who am far from being a cheerful type myself, remarked upon it.

"You don't know what it's like, Ken," he told me. "As a psionic deficient you'll never know. I's the aura of . . . of . . . Well, there's fear, and there's loneliness, and a sort of aching emptiness, and together they make up the *feel* of these Rim Worlds. A telepath is always lonely until, if he's very lucky, he finds the right woman. But it's so much worse here."

"There's Epstein, the P.R.O. at the port," I said. "And there's Mrs. Epstein. Why don't you see more of them?"

"That," he declared, "would make it worse. When two telepaths marry they're a closed circuit to an extent that no p.d. couple can ever be . . ." He drank some more beer. "Finding the right woman," he went on, "is damned hard for us. I don't know why it is, but the average Esper female is

usually frightfully unattractive, both mentally and physically. They seem to run to puddingy faces and puddingy minds . . . You know, Ken, I needn't have come on this trip. There are still so few of us that we can afford to turn down assignments. I came for one reason only—just hoping that by making a voyage all the way across the Galaxy I'd find somebody."

"You still might on the way back," I told him.

"I still might not," he replied.

I looked at him with a rather irritated pity. I could sense, after a fashion, what he was driving at. He was so much the typical introvert—dark of hair and face, long and lean—and his telepathic talent could do nothing but add to the miseries that come with introversion.

"You'd better have something stronger," I told him. I caught the bartender's eye. "Two double whiskies, please."

"Make that three," said a too hearty voice. I looked around, saw that Tarrant, our Second Mate, had just come in.

"Got tired of the same old stories at last?" I asked unkindly.

"No," he said. "But somebody had to go to find you two, and I was the most junior officer present, so . . ."

"Who wants us?" I demanded. "And why?"

"The Old Man wants you." He lifted his glass. "Here's to crime."

"What does he want us for?"

"I don't know. All that I know is this. Some meteor-pitted old bastard calling himself Captain Grimes came barging into the pub and demanded an audience with our lord and master. They retired to confer privily. Shortly thereafter the call for all hands to battle stations went out."

"Grimes . . ." I said slowly. "The name rings a bell. I seem to remember that when we handed the old *Eppy Swan* over somebody mentioned that Captain Grimes, the Chief Superintendent for Rim Runners, was away on Thule."

"Could be," admitted Tarrant. "He has the look of a chairborne spaceman. In which case we'll have another drink. It's bad enough having to run to the beck and call of our own Supers without having to keep those belonging to a tuppenny ha'penny concern like Rim Runners happy."

We had another drink, and another. After the third whisky Peter's gloom seemed to be evaporating slightly, so he ordered a fourth one. The Second Mate and I each ordered another round, after which we thought that we had better discover what was cooking. We walked rather unsteadily into the untidy

street, hailed a ground cab and were driven back to the Rim-rock House.

We found them all waiting for us in the Lounge—the Old Man and the rest of the officers, the chunky little man whose appearance justified Tarrant's description of him as a "meteor pitted old bastard."

"Sir," said the Old Man stiffly, "here are my Third Officer, Mr. Wilberforce, and my Psionic Radio Officer, Mr. Morris. I have no doubt that they will show as little enthusiasm for your project as any of my other officers. Yours is essentially a Rim World undertaking, and should be carried out by Rim Worldpersonnel."

"They can decide, sir," said Captain Grimes. "You have told me that these officers have no close ties on Earth or elsewhere; it is possible that they may find the proposition attractive. And, as I have already told you, we guarantee repatriation."

"What is it all about, anyhow?" asked Tarrant.

"Sit down, gentlemen," said Grimes, "and I'll tell you." While we were finding chairs he filled and lit a foul pipe. "I'll have to recapitulate for your benefit; I hope that the rest of you don't object.

"Well, as you are no doubt aware, we of the Rim Worlds consider ourselves the orphans of the galaxy. You know why these planets were colonised in the first instance—the Central Government of those days feared an alien invasion sweeping in from outside the Galaxy. The general idea was to set up a huge ring of garrisoned planets, a fortified perimeter. That idea has died over the years and, as a result, only a very small arc of the Rim has been explored, even.

"We of the Rim Worlds wish to survive as a separate, independent entity. Starved as we are of trade and shipping we have little chance of surviving at all. So it has been decided that we take our own steps, in our own way, to achieve this end.

"You've heard, of course, of the odd pieces of wreckage that come drifting in, from time to time, from *somewhere*. It was such flotsam that first gave the Central Government the idea that there might be an invasion from some other galaxy. Now, we don't think that those odd bits and pieces ever did come from outside. We think that there are inhabited planets all around the rim, and that advantageous trade would be possible with them.

"For years we've been trying to persuade the brass hats of the Survey Service to carry out a systematic exploration, but the answer's always the same. They haven't the ships, or they haven't the men, or they haven't the money. So, at last, we have decided to carry out our own exploration. Your old ship, *Epsilon Pavonis*, is being fitted out for the job. She's being renamed, by the way—*Faraway Quest* . . ."

"And what," asked Tarrant, "has this to do with us?"

Captain Grimes hesitated, seemed almost embarrassed. "Frankly," he said, "the trouble is this. We don't seem to breed spacemen, real spacemen, on the Rim Worlds. Puddle jumpers, that's all they are. They'll venture as far as Ultimo, or Thule, or the Shakespearean Sector, but they just aren't keen to fare any further afield . . ."

"There's too much fear on these worlds," said Peter Morris suddenly. "That's the trouble. Fear of the cold and the dark and the emptiness . . ."

Grimes looked at him. "Of course," he said, "you're the telepath . . ."

"Yes, I'm the telepath. But you don't need to be any kind of an Esper to sense the fear."

"All right, then," said Grimes. "My own boys are just plain scared to venture so much as a single light year beyond the trade routes. But I've got a Master for *Faraway Quest*—myself. I've a Purser, and Chief and Second Mannschenn Drive Engineers, and one Rocket Engineer. I've a Chief Officer and a Surgeon-cum-Bio-Chemist, and an Electronic Radio Officer. All of us are from the Centre, none of us was born out here, on the Rim. But this is a survey job, and I shall need a well manned ship.

"I can promise any of you who volunteer double your current rates of pay. I can promise you repatriation when the job is over, to any part of the Galaxy."

"Most of us," said our Captain, "have homes and families waiting for us. We've been out for too long now."

"You're sure that there are inhabited worlds out along the Rim?" asked Peter. "What of their people?"

"Purple octopi for all I know," replied Grimes.

"But there's a chance, just a chance, that they might be humanoid, or even human?" insisted the Psionic Radio Officer.

"Yes, there's a chance. Given a near infinitude of habitable worlds and an infinitude of time for evolution to take its course, then anything is possible."

"The purple octopi are more probable," I said.

"Perhaps," almost whispered Peter. "Perhaps . . . But I have limited, very limited, premonitory powers, and I have a definite feeling that . . ."

"That what?" I asked.

"Oh, never mind." To Grimes he said, "I take it that you can use a P.R.O., Captain?"

"That I can," declared Grimes heartily.

I sighed. "Your offer about double the pay," I said. "I'm Third Officer in the Commission's fleet as you know. If I come with you as Second, do I get twice the Commission's rate for that rank?"

"You do."

"Count me in," I said.

"You must be mad," said Tarrant. "Both of you—but Wilberforce is less mad than Morris. After all, he's doing it for money. What are *you* doing it for. Crystal Gazer?"

"Mind your own business!" he snapped.

Some hours later, when we were out at the spaceport looking over the structural alterations that were being made to *Faraway Quest*, I asked him the same question.

He flushed. "What do people do things for, Peter?"

"Money," I replied. "Or power. Or . . ."

"Precisely," he said, before I could finish. "It's only a hunch, but I have a strong feeling that this is the chance, the only chance, to find *her*."

I remember that I said, "I hope you're right."

Delta Bootes dropped down at last to Port Faraway, and all of our shipmates, openly jubilant, boarded her. We saw them off, Peter and I. We had our last drinks with them in the little smoking room and then, feeling rather lost and lonely (at least, I did) scrambled out of the airlock and down the ramp as the last warning bell started to sound. We stood with the other spectators a safe distance from the blast-off area, watched her lift on her column of pale fire, watched her vanish into the clear, twilit sky. With her departure I realised the irrevocability of my action in volunteering for this crazy survey voyage. There was no backing out now.

We walked to the corner of the field where work was still progressing on *Faraway Quest*. Outwardly she was little changed, except for the addition of two extra boat blisters. Internally she was being almost rebuilt. Cargo space was being converted into living accomodation. In spite of the shortage of trained space-faring personnel Grimes had found volunteers from other quarters. Two professors of physics from Thule City were signing on as assistant engineers, and there were three astronomers from Ultimo as well as a couple of biologists Grimes—who, we had learned, had served in the Survey Service as a young man—had persuaded the local police force to lend him three officers and fifty men, who were being trained as Space Marines. It began to look as though *Faraway Quest* would be run on something approaching Survey Service lines.

We looked at her, standing tall and slim in the light of the glaring floods.

I said, "I was a little scared when I watched *Delta Bootes* blast off, Peter, but now I'm feeling a little happier."

"I am too," he told me. "That . . . That hunch of mine is stronger than ever. I'll be glad when this old girl is ready to push off."

"I don't trust hunches," I told him. "I never have, and never will. In any case, this female telepath with the beautiful mind you're hunting for may turn out to be nothing but a purple octopus."

He laughed. "You've got purple octopi on the brain. To hear you talk, one would think that the Galaxy was inhabited by the brutes . . ."

"Perhaps it is," I said. "Or all the parts that we haven't explored yet."

"*She exists*," he told me seriously. "I know. I've dreamed about her now for several nights running."

"Have you?" I asked. Other people's dreams are as a rule, dreadfully boring, but when the other person is a telepath with premonitory powers one is inclined to take some interest in them. "What did you dream?"

"Each time it was the same," he said. "I was in a ship's boat, by myself, waiting for her to come to me. I knew what she was like, even though I'd never actually met her. She wasn't quite human. She was a little too tall, a little too slim, and her golden hair had a greenish glint to it. Her small ears were pointed at the tips. As I say, I knew all this while I sat

there waiting. And she was in my mind, as I was in hers, and she was saying, over and over, *I'm coming to you, my darling*. And I was sitting there in the pilot's chair, waiting to close the outer airlock door as soon as she was in . . ."

"And then?"

"It's hard to describe. I've had women in real life as well as in dreams, but never before have I experienced that feeling of utter and absolute oneness . . ."

"You're really convinced, aren't you?" I said. "Are you sure that it's not auto-hypnosis, that you haven't built up from the initial hunch, erecting a framework of wish-fulfilment fantasy?"

"I'd like to point out, Ken," he said stiffly, "that you're a qualified astronaut, not any sort of psychologist. I'd like to point out, too, that the Rhine Institute gives all its graduates a very comprehensive course in psychology. We have to know what makes our minds tick—after all, they are our working tools."

"Sorry," I said. "The main thing is that you feel reasonably sure that we shall stumble across some intelligent, humanoid race out there."

"Not reasonably sure," he murmured. "Just certain."

"Have you told Grimes all this?"

"Not all, but enough."

"What did he say?"

"That I was in charge of communications, not prognostications, and that my most important job was to see to it that my amplifier was healthy and functioning properly."

We all had to stand out on the field in a cold drizzle while the Presidents of Faraway, Ultimo and Thule made their farewell speeches. We were drawn up in a rather ragged line behind Captain Grimes, dapper in uniform, very much the space captain. The ex-policemen, the Marines, were a little to one side, and made up for what we lacked in the way of smartness. At last the speechmaking was over. Led by Grimes we marched up the ramp to the airlock, went at once to our blasting-off stations. In the control room Grimes sat chunkily in his acceleration chair with Lawlor, his Chief Officer, to one side of him. My own chair was behind theirs, and at my side was Gavin, one of the astronomers from Ultimo, who was on the ship's books as Third Officer.

Reports started coming in. "Interplanetary Drive Room—manned and ready!" "Interstellar Drive Room—manned and ready!" "Hydroponics—all secured!" "Steward's store—all secured!"

"Mr. Wilberforce," ordered Grimes, "request permission to proceed."

I spoke into the microphone of the already switched on transceiver. "*Faraway Quest* to Control Tower, *Faraway Quest* to Control Tower. Have we your permission to proceed?"

"Control Tower to *Faraway Quest*. Permission granted. Good luck to all of you!"

Gavin was counting aloud, the words carried through the ship by the intercom. "Ten . . . Nine . . . Eight . . . Seven . . ." I saw Grimes' stubby hand poised over the master firing key. "Six . . . Five . . . Four . . ." I looked out of the nearest viewport, to the dismal, mist shrouded landscape. Faraway was a good world to get away from, to anywhere—or, even, nowhere. "Three . . . Two . . . One . . . *Fire!*"

We lifted slowly, the ground falling away beneath us, dropping into obscurity beneath the veil of drifting rain. We drove up through the low clouds, up and into the steely glare of Faraway's sun. The last of the atmosphere slipped, keening shrilly, down our shell plating and then we were out and clear, with the gleaming lens of the Galaxy to one side of us and, on the other, the aching emptiness of the Outside.

For long minutes we accelerated, the pseudo-gravity forcing us deeply into the padding of our chairs. At last Grimes cut the Drive and, almost immediately, the thunder of the rockets was replaced by the high, thin whine of the ever-precussing gyroscopes of the Mannschenn unit. The Galactic Lens twisted itself into an impossible convolution.

The emptiness Outside still looked the same.

That emptiness was with us all through the voyage.

Star after star we circled; some had planetary families, some had not. At first we made landings on all likely looking worlds, then, after a long succession of planets that boasted nothing higher in the evolutionary scale than the equivalent to the giant reptiles of Earth's past, we contented ourselves by making orbital surveys only. Peter succeeded in talking Grimes into entrusting him with the task of deciding whether or

not any planet possessed intelligent life—and, of course, cities and the like could be spotted from space.

So we drove on, and on, settling down to a regular routine of Interstellar Drive, Interplanetary Drive, Closed Orbit, Interplanetary Drive, Interstellar Drive, Interplanetary Drive . . . Everybody was becoming short-tempered. Grimes was almost ready to admit that the odd pieces of flotsam falling now and again to the Rim Worlds must have come from Outside and not from somewhere else along the Rim. Had our purpose been exploration as a prelude to colonisation we should have felt a lot more useful—but the Rim Worlds have barely enough population to maintain their own economies.

Only Peter Morris maintained a certain calm cheerfulness. His faith in his hunch was strong. He told me so, more than once. I wanted to believe him but couldn't.

Then, one boring watch, I was showing Liddell, one of the astronomers, how to play three dimensional noughts and crosses in the Tri-Di chart. He was catching on well and I was finding it increasingly hard to beat him when suddenly, the buzzer of the intercom sounded. I answered it. It was Peter, speaking from his Psionic Communications Room.

"Ken!" he almost shouted. "Life! Intelligent life!"

"Where?" I demanded.

"I don't know. I'm trying to get a rough bearing. It's in towards the Lens from us, that much I can tell you. But the bearing doesn't seem to be changing."

"No parallax?" asked Liddell. "Could it be, do you think, a ship?"

"It just could be," I said doubtfully.

"Ken, I think it's a ship!" came Peter's voice. "I think that they, like ourselves, have Psionic Radio . . . Their operator's vaguely aware of me, but he's not sure . . . No—it's not *he* . . . It's a woman; I'm pretty certain of that . . . But it's a ship all right. Roughly parallel course, but converging . . ."

"Better tell old Grimy," I suggested, hastily clearing the noughts and crosses lattice from the Tri-Di chart. To Liddell I said, "I'm afraid Peter's imagining things. Not about the ship—she's probably a stray Survey vessel—but about the female operator. When psionic radio first started we used to carry them, but the average woman telepath is so unintelligent that they were all emptied out as soon as there were enough men for the job."

"It could be an alien ship," said Liddell.

"It could be, but it's not," I said. "Unless, of course, it belongs to one of the alien races with whom we've already made contact. It could be a Shaara vessel—that would account for Peter's female telepath. The Shaara are social insects, and all the work is done by the females."

Captain Grimes came into the control room. He looked almost happy. "Contact at last," he said.

"Suppose they are aliens," said the astronomer, "and suppose they open fire on us . . . What then?"

"By the time people get around to building interstellar ships," said Grimes, "they've lost the habit of wanting to fight strangers."

"Sometimes," I said.

"Switch on the Matter Proximity Indicator," he said.

I did so, peered into the globe that was its screen.

"There's something . . ." I said. "Red 085, ZD 093 . . ."

"A little astern," murmured the Old Man. "Range?"

I manipulated the controls carefully. "Twenty thousand—and closing. Relative bearing not altering."

"Liddell," said the Captain. "You're an astronomer, a mathematician. What are the odds against this? With all the immensity of Space around us we have two ships approaching on collision orbits. The other ship is using a similar Drive to ours—she must be. If her rate of temporal precession were more than one microsecond different from ours she would not register on our screens, and there'd be no risk of collision. What are the odds?"

"Astronomical," replied Liddell drily. "But I'll tell you this, although you must, by this time, have come to the same conclusion. There's a Law of Nature that you'll not find in any of the books, but that is valid just the same. If a coincidence can happen, it will."

"I'll buy that," said Grimes.

Peter's voice came from the squawk box. "I've established contact. She's an alien ship, all right. She belongs to some people called the Lowanni. She's a trading vessel, analagous to one of our Beta Class ships. Her captain wishes to know if he may close us to make contact."

"Tell them yes!" almost shouted Grimes. "Mr. Willoughby—sound the General Alarm. I want all hands at stations."

Damn it, this is just what we've been hunting for ! Neighbours along the Rim . . ."

I sounded the Alarm. The ship hummed like a disturbed beehive as one and all hastened to their stations. The reports began coming in ; " Rocket Drive manned and ready . . . Electronic Radio Office manned and ready . . . Surgeon and Bio-Chemist standing by for further instructions . . ." The Chief and Third Officers, together with the other astronomer, pulled themselves into the already crowded control room.

It seemed only a matter of minutes—although it was longer—before the alien ship was within telescopic range. Just a little silvery dot of light she was at first, hard to pick up against the gleaming convoluted distortion of the Galactic Lens. And then, slowly, she took shape. There was little about her appearance that was unusual—but any spaceship designed for landings and blastings off through an atmosphere must, of necessity, look very like any other spaceship.

Meanwhile, our Electronic and Psionic Radio departments were working together. I still don't know how Peter Morris and his opposite number in the alien ship managed to sort out details of frequency and all the rest of it, but they did. It may be, of course, that mathematics is the universal language—even so, it must have been quite a job for the two telepaths to transmit and receive the electronic technicalities.

They came into the Control Room then—Peter Morris and Sparks. Sparks busied himself with the big intership transceiver, twisting dials and muttering. Peter whispered occasional instructions.

The screen came to life. It showed the interior of a control room very like our own. It showed a group of people very like ourselves. They were in the main slimmer, and their features were more delicate, and their ears had pointed tips, but they were human rather than merely humanoid.

One of them—his black-clad shoulders were heavily encrusted with gold—said something in a pleasant tenor voice. The girl standing beside him seemed to be repeating what he was saying ; her lips moved, but no sound came from them.

" Captain Sanara says, ' Welcome to the Dain Worlds, ' " said Peter.

" Tell him, ' Thank you, ' " said Grimes.

I saw the girl in the alien ship speak to the Captain. She must, I thought, be their P.R.O. I remembered, suddenly,

what Peter had told me of those dreams of his before we left Faraway. *She was a little too tall, and a little too slim, and her golden hair had a greenish glint to it. Her small ears were pointed at the tips . . .* And she has a wide, generous mouth, I thought, and in spite of the severity of her uniform she's all woman . . . I looked at Peter. He was staring into the screen like a starving man gazing into a restaurant window.

Shortly thereafter it became necessary for the two ships to cut their interstellar drives—alterations of course are impossible while the Drive is in operation, and an alteration of course there had to be to avert collision. During the operation the image on the screen blurred and wavered and, at times, vanished as the two rates of temporal precession lost their synchronisation. Peter, I could see, was on tenderhooks whilst this was taking place. He had found, thanks to an utterly impossible coincidence, his woman; now he dreaded losing her.

He need not have worried. Grimes was an outstanding astronaut and, in all probability, the alien Captain was in the same class. The other ship flickered back into view just as the Galactic Lens reappeared in all its glory. Our directional gyroscopes whined briefly, our rockets coughed once. Through the port I saw a short burst of pale fire at the stern of the alien—then we were falling through space on parallel courses with velocities matching to within one millimetre a second.

Time went by. Through the telepaths the two Captains talked. We heard about the Dain Worlds, whose people were relative newcomers into Deep Space. We heard about their social and economic systems, their art, their industries. As we listened we marvelled. These people, the Lowanni, were our twins. They thought as we did and acted as we did, and their history in most ways paralleled our own. I knew what Grimes was thinking. He had made up his mind that the Rim Worlds had far more in common with these aliens than with the crowded humanity at the Galactic Centre. He was thinking of more than trade agreements, he was thinking in terms of pacts and treaties.

Even so, trade was not to be sneezed at.

They talked, the two Captains. They discussed an interchange of gifts, of representative artifacts from both cultures. It was when they got to this stage of the proceedings that they struck a snag.

"There are," said our Doctor coldly, "such things as micro-organisms. I would point out, Captain, that it would be suicidal folly to allow an alien to board this ship, even if he kept his spacesuit on. He might carry something that would wipe all of us out—and might carry something back with him that would destroy both himself and all his shipmates."

Peter broke in. "I've been talking with Erin," he said.

"Erin?" asked the Old Man.

"That's her name, sir. She's the alien P.R.O. We've decided that the exchange of artifacts is necessary, and have been trying to work out a way in which it would be carried out without risk. At the same time, it means that both parties have a guinea pig . . ."

"What do you mean, Mr. Morris?"

"Let me finish, sir. This ship, as you know, has only one airlock, but carries more boats than is necessary. *Listra*—the ship out there—has the normal complements of boats for a vessel of her class but has no less than four airlocks, two of which are rarely used. This is the way we've worked it out. One of our boats, and one of *Listra's* airlocks, can be used as isolation hospitals . . .

"I can handle a boat, sir, as you know, compulsory for every non-executive officer in the Commission's service to hold a lifeboatman's certificate. The idea is this. I take the boat out to midway between the two ships, carrying with me such goods as we are giving to the aliens. Erin comes out in her spacesuit, bringing with her what the aliens are giving us. Then she returns to her ship, and I bring the boat back to this ship. She will remain in the airlock, as I shall remain in the boat, until such time as it is ruled that there is no danger of infection . . ."

I looked at the screen. I saw that the slim, blonde girl was talking earnestly to Captain Sanara. I saw other officers joining in the discussion. I looked back from the screen to Captain Grimes. His dark, mottled face was heavy with misgivings. I heard him say, "This could be suicide, Mr. Morris."

"It could be, sir—but so could coming out on an expedition like this. And you know as well as I do that very few alien micro-organisms have been found that are dangerous to Man. All that it means, essentially, is that Erin and I will have to do our jobs in rather uncomfortable conditions from now on."

"Why you, and why Erin?"

"Because we're the telepaths. Suppose, for example, you send a tube of depilatory among the other goods to be exchanged. Erin's people might think that it's toothpaste, or mustard, or . . . or anything at all but what it is when we're together in the boat we can explain things, talk things over. We'll get more ground covered in half an hour together than we should in half a week, talking ship to ship . . ."

"You've got it all worked out, haven't you?" grumbled Grimes. "But on a job of this sort it's foolish to discourage an enthusiastic volunteer . . . Well, I suppose that the rest of you had better start collecting artifacts. Books, and tools, and instruments, samples of our food and drink . . ."

"You mean it's all right, sir?" asked Peter, his face suddenly radiant.

"Mr. Morris, if this were a commercial vessel I'd never allow one of the officers to take such a risk. If you like you can tell that girl that I take a dim view of her Captain for allowing her to take the risk . . ."

"She doesn't think of it that way."

"Doesn't she? Then she should."

"Can I get ready, sir?"

"You can. Don't forget to brush your hair and wash behind the ears—after all, you have acting temporary ambassadorial status."

"Thank you, sir."

Peter vanished from the control room as though he had added teleportation to his other talents. Grimes sighed and looked at the screen, looked at the radiant girl who was, obviously, thanking her Captain. He sighed again and demanded, of no one in particular, "Who said it?"

"Who said what?" asked the Chief Officer.

"Journeys end in lovers' meetings," said Grimes.

It was all so obvious, even to non-telepaths.

I was in the boat with Peter shortly before he blasted off.

I said, "You seem pretty certain."

"Of course I'm certain. And she was lonely too, just as I have been. Among her people they have a similar set-up to ours, but in reverse. With them it's usually the male telepath who's an unattractive, mindless clod. This chance-encounter means a lot to both of us."

"She's an oxygen breather?" I asked. "You're sure of that? I mean, if she comes in here and takes off her helmet and our atmosphere poisons her . . . I don't want to be pessimistic, but I believe in facing facts."

"She's an oxygen breather," Peter assured me. "She eats food very like ours. (I hope she likes chocolates—I've got some here). She drinks alcoholic liquor in moderation. She smokes, even. She can try one of our cigarettes and I'll try one of hers . . ."

"You've found out a lot in a short time, haven't you?"

"Of course I have. That's my job—and hers. But I'll have to ask you to leave me, Ken. I've got a date."

"Are you sure you wouldn't like me to come along?"

"Not bloody likely!" he snapped.

"All right, then. And all the best of luck."

"Thanks," he said.

I stood by the blister until I felt the shock of his blasting off, until the red READY light changed to green, showing that he was out and clear. I made my way back to Control. I joined the group at the port watching the little spacecraft coasting out and away from us, watched her take up a position roughly midway between the two ships.

We saw a circle of yellow light suddenly appear on *Listra's* sleek side. We saw, through telescopes and binoculars, the little figure that hung there for a while in black silhouette. We could make out the bulky bundle that she was carrying.

Flame jetted from her shoulder units, and she was falling out and away from her own ship. Slowly she approached the lifeboat. I looked away briefly, looked at the screen. The aliens, like ourselves, were crowded around viewports, were watching this first physical contact between our two races.

She was very close to Peter's boat now. I could imagine him waiting in the little cabin, as he had waited—how many times?—in his dream. I could appreciate, dimly, what he must be feeling. I had been in love myself and had waited for the loved one, and what I had felt must be no more than a pale shadow of what is felt by a telepath. There was, I confess, more than a little envy in my thoughts.

She was very close to the boat, and I saw that Peter had the outer door of the little airlock open.

For a long second she was silhouetted against the glow of the airlock light . . .

And then . . .

And then I was blind, as the others were blind, with tears welling from my eyes, the skin of my face burning from its exposure to radiation. She had been there, just entering the boat, and then she and the boat had vanished in one dreadful flash.

Slowly sight returned, dim and painful. I was looking once again at the screen, and I could see that those in the other ship had been affected as we had. There was pain on their faces, and it was not only physical pain. I knew then—as they must have known as they looked at us—that this had been no act of treachery, that there had been no murderous bomb concealed among the package of bartered goods.

Slowly the alien Captain shrugged his shoulders. He made a gesture of rejection with his slim hands. One of his officers handed him something. It was a black glove. He put it on. Slowly he brought his hands together—the white skinned one and the black gloved one. He flung them apart explosively.

The screen went blank. We looked away from it through the port. The alien ship was gone.

"We should have guessed," Liddell was muttering. "We should have guessed. *They* did."

"But too late," said one of the others.

"What should we have guessed?" asked Grimes.

"Anti-matter," said Liddell. "We've known for centuries that it can exist. Matter identical with what we call normal matter, except that all electrical charges are reversed. We thought that we might find it in other galaxies if ever we had a ship capable of making the journey . . . But perhaps the Dain Worlds aren't really part of this galaxy at all."

"And when it comes into contact with normal matter?" pressed Grimes.

"You saw, Captain. There can never, *never*, be any contact between the Lowanni and ourselves."

"And what happens," I asked, "when it's two living bodies of the two kinds of matter that make the contact?"

"You saw," said Liddell.

But I was not satisfied with the answer, and am still not satisfied. I remembered what Peter had told me about the conclusion of his dream, and have yet to decide if he was the unluckiest, or the luckiest of men.

Bertram Chandler

Readers who liked James White's story "Tableau" in the May 1958 issue (and there were plenty) will more than enjoy the following story, with its galactic setting and cosmic-scale war. As in "Tableau" White weaves in a very strong moral.

DOGFIGHT

By James White

Into the gigantic task force assembling on the fringe of the Sirius system had gone the resources of seven inhabited worlds, and still it was not big enough. Captains, sub-fleet Commanders and all the way up the pyramiding chain of command, men drove themselves mercilessly to the limit of endurance and beyond, one eye always on the clock. This which was being asked of them could not be done, they swore. More particularly, it could not be done in *time*; the problem of liaison and supply, the mountain of organisational detail involved in merely assigning positions made the task impossible. It couldn't be done, they persisted angrily while they strained every nerve and muscle in their bodies doing it.

For the directive had stated *Maximum Effort* . . .

Precisely on the calculated second, though still frantically engaged in sorting itself into proper battle order, the great fleet moved off. Mighty capital ships over half a mile in length, massed echelons of cruisers and a veritable cloud of lighter stuff, all slipped as one into hyperspace and shot away on their allotted course. Each ship of the fleet was now at the centre of a small, self-created and highly artificial con-

tinuum where reaction was out of all proportion to action and matter was not held down to the limiting speed of light.

Hours and days passed, then weeks, and the fleet—still at maximum acceleration and below the required strength—plunged onwards. But its numbers were being augmented now by units sent by planets adjacent to its course. It did not matter that whole worlds were drained of war resources or that planetary populations had worked night and day to put them there—they were there, on course and on time, that was the important thing.

On the Flagship, logistics problems of enormous proportions were being broken down into handy, manageable sizes. Supply and maintenance vessels were already following in their wake and this supply line had to be protected. The fleet continued to grow, but at a slower rate as units were detached to neutralise the few enemy positions nearby which were a potential threat. When the growth finally ceased its make-up and numbers were exactly as ordered in the Directive from the tactical computer, and the point in time and space where its headlong dash was to end was only hours away.

As yet nobody had any idea what to expect when they got there.

Morale was high, however. The men were confident that RK9—the official designation for the tactical computer at Headquarters—would take good care of them. RK9 knew her stuff ; whether this present mad dash was a surprise move to end the war or a step intended to counter an attempted breakthrough by the enemy, the battle computer would have the moves worked out well in advance. Unlike some of the electronic brains used in the opening decades of the war, when every major battle was such a bloody shambles that the victors could not honestly say that they had won, RK9 was mindful of the men inside the ships which she moved around. And something very like this had happened some eighty years ago when RK9 had just come into operational service, a piece of brilliant anticipation and bold strategy which had turned the tide of the war.

But despite their trust in the giant electronic brain, their knowledge that it would not wantonly throw away their lives, they knew that war was still a risky business. As the tremendous battlefleet hurtled onwards many of them wondered if they would live to see many more days.

Henson knew that the single moon of Earth was the most heavily defended body in all the vast volume of space under Human control, and the whole of that incredibly complex and efficient defence system of ships, missiles and long-range detectors was centred around the crater Harpalus. It was as if some early planner had arrived at a figure in men and materials which could protect it against any conceivable attack, and then multiplied everything by three. Within this fantastically thorough network of defence there came into operation protective measures of a less material sort ; hundreds of shrewd, hard-eyed but unobtrusive security officers whose purpose was to deal with any possible attack from within. And the reason for it all lay in a series of chambers half a mile below the crater floor in which were housed the near-legendary battle computer RK9 and the offices of General Craig, Director of Strategy.

As the newly-appointed aide to the General, Henson thought sourly, he should have been in a uniquely favourable position for an enemy agent . . .

Looking across the ante-room at the sound-proofed door of Craig's office, Henson decided that there was definitely something going on—or more accurately, that something was going *wrong*. Shawcross, the senior officer in charge of Materials and Personnel, was with the General at the moment. He had gone barging into Craig's office without so much as a nod. "It's happened again !" he had shouted angrily ; and "That unprintable thing will have to be destroyed, do you hear ! We can't have a—" The door had slammed behind him at that point, leaving Henson to the realisation of how near he had been to learning something of importance.

Presently the door opened and Shawcross came out, closely followed by Craig. Looking at the face of the Materials and Personnel man Henson was reminded of the evolutionary pattern of a main sequence star—when Shawcross had gone in his thin, intense face had been red and swollen with anger, which had now condensed to a tight, white-hot fury. He left without speaking. General Craig stared after him for several seconds, looking worried, then turned to Henson.

"I've a job for you, Colonel," he said, and paused. His tone was harsh but not deliberately offensive, the one used when he had a lot on his mind and was trying to disguise the fact. He went on, "We have made a penetration in force

and the prisoners are becoming a problem. Go out there and handle things—you've been cleared for all data on the operation and you can have the subsidiary computer for the next two hours to work out the details. All right?"

"Yes, sir," said Henson briskly, desperately trying to hide his feelings at the news that he was about to be pulled out of the centre of things just when some sort of crisis was impending. But like the eager and patriotic young officer that he was trying to portray he added, "The operation, sir, was it a success?"

"So far, yes—it was a surprise move." The General gave a short, unmirthful laugh, turned and re-entered his office. He left Henson with the odd feeling that the operation had been a surprise to everyone concerned, including the Director of Strategy.

Definitely, he thought, there was something here which could be exploited to the advantage of his hard-pressed race. If only he knew what it was.

Next day the being who called himself Colonel Richard Henson was at the controls of a one-man courier vessel en route to his latest assignment. It was on rare occasions such as this, when the eyes of Security men, his fellow Earth officers or even the Human man-in-the-street were off him, that he was able to relax and become himself. Strangely, this was not a wholly pleasant process, he had discovered; it felt almost as if the real him was the character in the play—a character strangely lacking in depth, whose background was hazy in places and whose lines he did not know very well—and the Henson role the reality.

For it was not a nice thing to be a Semran undercover agent, and a member of a culture which was steadily losing an interstellar war with Earth.

At times like this he found his mind trying to slip into one of the many worlds of might-have-been. If a little more diplomatic oil had been introduced one hundred and thirty years ago when the two cultures had met; properly used it could have caused the mutually abrasive surfaces to acquire a smooth, cool polish instead of leaving them hot and raw. Or if the Semra had retained their technological lead, or if the Humans had not developed RK9 . . .

As a culture Semra had been old, highly advanced and intensely conservative, that of Earth young and on the brink

of interstellar expansion with all that that implied. At first the war—the great, sprawling, unwieldy and *slow* war—had gone in favour of the Semrans. Semra was superior in ships, in men trained to work them and in the speed and efficiency of the tactical computers which fought all her battles. Then gradually the Humans had built and improved on their calculators until a deadlock had been reached. Battles continued to be won and lost, but only by the narrowest of margins. Thinking of those terrible encounters, of what he had heard and read and just imagined about them, Henson cringed.

The war had been a murderous chess game then, with the opposing battle computers—cold, logical and unfeeling machines bent only on winning the game no matter if it meant practically clearing the board to do it—as players and the Human and Semran beings concerned as unimportant and worthless pawns. Every engagement resulted in a massacre for both sides, the advantages lost or gained being microscopic. The ensuing deadlock had been broken only when the Earth forces had begun using RK9, and it had been at that point that Semra started losing the war.

Staring unseeingly at the controls before him—switched to automatic now to allow him to concentrate—the Semran agent began to feel the gnawings of self-doubt. So much depended on him now. The Semran High Command had early realised that the Earth successes were due solely to the new calculator. If the circuitry or working principles of that genius among computers could be copied and given to them, or if the RK9 computer could be destroyed or sabotaged in some fashion, then the defeat looming inevitably before them might be staved off until some more positive action could be taken. That was why, driven by a desperate High Command, Semran Intelligence had contrived to train, mould and almost kill one of their agents in a last-ditch attempt to place one of their people next to Earth's super calculator.

On Earth Richard Henson had been a brilliant student and a more than adequate cybernetics engineer. With a highly technical war being waged it was only natural for him to join the fighting forces as a computorman, gain promotion and eventually attain to the position he craved. And once there what had happened? He had been sent off on an errand half across the Galaxy!

But was this assignment merely a piece of bad luck, he wondered suddenly, or were the Earth Security people on to him? He knew that he had been given a background that was solid and well documented and the physiological differences, which were very few and minor, had been removed by traceless surgery. But a single slip could have negated all that. His mind was drawn into a tightening, descending spiral of despair for his race and himself until it reached the state where he was on the point of giving up and setting course for the nearest Semran-held world.

Angrily he curbed these traitorous impulses and began forcing himself into the Henson character again. Henson was a happier and more positive person, and he had a lot of preparatory work to do before the end of the trip. Almost gladly, Henson plunged into it.

The planets overrun by the latest Earth penetration were outpost worlds of little importance and so lightly held that they offered no opposition to the overwhelming force of the enemy—Semra, although brave enough, were very practical. But when Henson reached his destination—a point in space approximately two-thirds of the way along the Earth line of advance, which was the centre of organisation for Supply and Maintenance—he found that the prisoners were already piling up fast. The total personnel of the thirty-odd outposts taken over, even though they had been lightly defended, came to a respectable figure. The Admiral commanding this advance supply base had, as well as the normal worries of his position, the problem of feeding and keeping control of over five thousand prisoners of war with inadequate supplies of food or men to guard them. Henson's arrival was a great relief to all concerned.

"We have transports already on the way from Earth which should arrive in a day or two," Henson told the senior Admiral immediately the introductions were over, "and a place has been found for the prisoners. It would be a big help, however, if you could let me borrow some Computormen and guards until the others arrive . . .?"

The Admiral agreed without hesitation. Even though the other's shoulders sagged under their weight of gold braid—and responsibility—and Henson bore the relatively minor rank of Colonel, agreement was merely a matter of form because

behind and above that Colonel's insignia loomed the awful majesty of RK9.

"In that case," said Henson smiling, "we'll have the prisoners out of your hair in no time at all." The Admiral's hair was going thin, but just enough for him to take the words as a compliment rather than a crack. He went on, "But I wonder, sir, if I could ask a question. Back on Luna the Security is so tight that we never know what the Big Brain is thinking until long after whatever she has planned is finished. Could you tell me how this current job is going?"

The Admiral was silent for a long time, then he said brusquely, "I honestly don't know. It seems to be going well, but how can one judge the degree of success when the objective of the operation is unknown . . .?"

This Admiral, thought Henson suddenly, is a man under considerable internal pressure. It was clear that there were a lot of things which he wanted to get off his chest and, despite the danger that the things he would say might land even a man of his vast seniority into trouble, he was bent on saying them to someone who he thought could do something about it.

" . . . What sort of picture do the words 'penetration in force' give you?" the Admiral went on. "A great spear-head of ships and men plunged into the heart of enemy territory, disrupting supply routes, cutting communications and rolling everything before it?" He snorted. "Well that is not happening here.

"Maybe seventy or eighty years ago an offensive in this area would have done some good—one did, now that I remember—but the enemy has long ago retreated from this volume of space except for lightly defended positions which are little more than advance listening posts. Instead of a deep, potentially fatal wound we have therefore inflicted nothing but a long, shallow scratch. And to make this scratch, to collect this super task force, we have had to practically strip a whole galactic region of defence!"

Some sort of reaction seemed to be expected of him at this point, Henson thought. He said, "Er, what are they doing now, sir?"

"Nothing!" the Admiral barked. "Just nothing! Eighty thousand units big and small and all of them just waiting for something to happen. The job of supplying them alone . . ." He broke off and with a great effort brought his voice back

to a conversational level. "An Emergency Directive calling for maximum effort sent us out here and so far there have been no further orders from RK9 or anyone else. Now we both know that there have been times when fleets were moved suddenly without their personnel being in the picture, but they were always informed of their place in that picture very shortly afterwards. This time we know nothing at all. And what is worse, I've begun to hear of other, and admittedly smaller, instances just like this one."

When the Admiral had begun speaking Henson had been prepared to hear him blow off a little personal steam, but now it was clear that the other was a seriously worried man. He was also beginning to realise that perhaps it had been a piece of rare good fortune being sent out here by Craig—he was finding out things that he would never have discovered on Security-blanketed Luna. And it was important information, too, so important that it was all Henson could do to hold the grave expression on his face while the Admiral continued talking.

"The fact that this movement has left a region open to enemy attack is bad enough," he went on, "but what is worse is the way some of the men are beginning to feel about RK9. They trust her, of course—she still wins battles, looks after their safety by winning with the minimum of casualties, and so on. These men are of the opinion that this operation was a move to anticipate one by the enemy, and that because they have not shown up the enemy has been outsmarted and the operation is therefore a success. But some of them, the more informed ones, are beginning to have doubts. Among other things they are wondering if perhaps the Semra have developed a calculator which is as good, or maybe better, than ours . . ."

When Henson left the Admiral a few minutes later, after assuring him that he would bring all these points to the attention of General Craig, he had to fight to keep from shouting with sheer exultation. He now had proof that something was definitely wrong with the much-vaunted tactical computer of the Earth forces, so much so that Human morale was becoming affected. And large volumes of Earth territory were undefended through this peculiar malfunctioning of RK9. This was the sort of information which could win wars. It might win this one for the Semra.

During the three days it took for the transports to arrive, Henson worked furiously, striving to shorten if only by hours the time it would take for him to complete his assignment and return to Luna and RK9. The immediate problems demanding solution were those of storage : where to put the erection machinery which had to produce temporary shelters for five thousand Semran prisoners, the vast number of agricultural and associated mechanisms which would render them self-supporting, and the tremendous quantities of food needed to keep them alive until that time would come about. The agricultural material was the worst headache because it had to be of the old-fashioned plough and tractor type—big, awkward, cranky things whose power source had to be the internal combustion engine rather than the lighter and more handy atomics, because that way there was less chance of ploughshares being turned into swords. And there had to be a necessary surplus allowed in some categories, mainly where medical supplies were concerned, because the prison population might be added to by further captures as well as the increase which would take place normally with the passage of time.

In the very rare moments when such pressing matters did not occupy his mind Henson would dream a little. In these hurried but vivid day-dreams he would discover and make available to the Semran High Command some terrible flaw in Earth's war machine, of such importance that the whole trend of the present conflict would immediately swing over in favour of the Semra. In practically no time Earth would be forced to sue for peace and if he, the Semran Intelligence officer who had brought it all about, had any say in the matter those terms would not be too harsh.

For Earth was a ruthless, but never needlessly cruel, enemy—their P.O.W. system in particular was extremely humane, *and* highly economical to boot ! And the differences between Semra and Earth, especially to a person like himself with wide experience of both sides' points of view, were not great . . .

The beautiful dream would usually be interrupted by a harried computorman waving papers and protesting that there had been no provision made for seed storage—that Hold J-107, the space normally used for this purpose, had been converted into extra living quarters and the only other possibility, B-82, was being used for the milk and meat animals, all of whom would just *love* to get at that grain, and had the Colonel any suggestions ?

But finally the transports arrived, were loaded and set off with a destroyer flotilla as escort. Between them the transports contained nearly two thousand prisoners together with security men and ecology experts. The operating crew, as was usual on unarmed and highly servo-mechanised ships of that type, numbered less than twenty and their quarters were much more spacious and well-appointed than on the fighting ships. Henson's next most important job being the talk with the senior Semran prisoners, he asked the ship's Captain for the loan of that worthy's cabin. Just, he had joked, so that he would make a good last impression.

On the tenth day after leaving the advanced supply base Henson had the three senior prisoners brought to him.

He made his manner polite but slightly distant when he greeted them and offered seats, but it was not until he was seated himself that he recognised Harelfia and saw that his old-time friend knew him . . .

"I am Colonel Henson," he announced quietly, and while the Semrans exchanged their names and rank with him he studiously looked right through Harelfia. Harelfia, who was no fool, did exactly the same with him. He went on, "Some of you may have heard rumours of how Earth deals with her prisoners of war, rumours which say that because no trace can be found of any Semran once he has been taken prisoner that we do not take prisoners. Well, I can assure you that this is not so. We do take prisoners, though what we do with them will come as a shock to you."

Henson smiled, then continued, "But before I tell you your fate a little background information might help you to understand what is to happen . . ."

Since the time more than six decades before when the forces of Earth had unquestionably gained the initiative in the war, the prisoner problem had increased to fantastic proportions. As the war progressed millions of men and vast quantities of war material were tied up merely in guarding these prisoners. And, as might have been expected, cases of cruelty and malnutrition became more and more common because facilities for taking care of them were becoming increasingly strained. It was quickly reaching the point where the whole war effort was being affected by this hampering burden of prisoners. A solution had to be found, and it was.

"While you are on this ship," Henson went on, "you are prisoners bound to the rules of obedience and subject to the punishments of those who disobey. When you leave it, however, you will be free."

Henson paused and tried his smile again, but the three faces before him remained stoney. They were not surprised because they just did not believe him.

"With you when you leave," he explained, "will go enough food, prefabricated shelters and agricultural machinery to start you off as a self-sustaining colony. We will leave you to do as you like with yourselves but, being intelligent beings, we know that you will work to stay alive. During the next ten or twenty years we will drop other 'prisoners' down to you and you will doubtless assimilate them into whatever form of culture you devise for yourselves—we will have no contact with you whatsoever nor will we try to guide your thinking in any way."

The startled looks were coming now, all right.

Henson said, "You can see the beauty of this idea, and the fact that it is workable only with a culture like the Semra where absolute equality of the sexes is the norm. Instead of having to feed, clothe and shelter our prisoners for the rest of their lives—and guard them—we allow them to do all these things for themselves. The original expense of setting you up as a colony is great, but not a patch on what the other way would be, and a few men at most will be sufficient for guard duty.

"Those few men will be in an orbiting spaceship," Henson concluded gently, "just in case some of you succeed in throwing together a spacecraft with which to take home news of the location of this planet-wide prison camp. I don't think this would be possible—the machinery being given you while usable is antiquated—but we try not to underestimate any being's ingenuity. The ship will have means of detecting and destroying any such attempt."

Up until then everything had been in Earth English—the Semra as a race had little difficulty learning new languages compared with the Earth-men. But now the Semran officers were talking heatedly together in their own tongue, which Colonel Henson was not supposed to know. It took considerable effort to make his face register blank non-comprehension while they talked, often mentioning places and people

he knew as well as they, although none of them were ever likely to see them again.

If only he could get Harelfia alone, he thought longingly, so that he could get some *news* . . .

"Your method of dealing with prisoners," burst out one of the trio suddenly in English, "is high-handed, unfair and . . . and selfish ! Compared with our expense of maintaining camps for you Humans—"

"Surely," put in Henson gently, "there are not all that many Earthmen captured these days."

The objector subsided and there was a silence which began to grow awkward. Henson stood up.

This, he reminded himself, was not Harpalus where Security men waited to jump at the slightest suspicion of odd behaviour. Besides, the guards on this ship were just that, not the trained psychologists and spy-hunters which clustered so thickly around RK9. Henson wanted badly to talk to Harelfia, and by Heavens he *was* going to talk to her, and right now !

He said, "That is all for the time being. When you have digested the information just given you I'm sure you will have questions. Well, my duty is to give you all the help possible short of allowing you to go home. At the moment, however, I would like to talk to one of you alone. Flotilla Leader Harelfia, perhaps . . . ?"

Harelfia nodded. "Kind of you," she said with just the right mixture of dryness and hostility, "not to phrase it as an order."

The same old Harelfia, thought Henson as the other two Semran officers and their guard left the cabin. It had been twenty-three years since he had seen the other, just before he had gone into training for the Henson role, and there was suddenly so much he wanted to say and so much he needed to know that his speech centres were paralysed through sheer overload. Finally he got out, "We can talk . . ."

And they talked. Henson was careful to avoid giving details about himself because of the slight danger that Harelfia might let slip something to the other prisoners which in turn might be overheard by the guards. But the Flotilla Leader had no such curb on her tongue, and as she talked Henson gradually came to realise that this was not the Harelfia he had known of old at all—there was an air of cynical hopelessness about her that had nothing to do with capture and the prospect

of life-long isolation on the P.O.W. planet. Only when she began talking about the war and its effect on the Semran population as a whole did the reason for it appear.

Dissatisfaction, despair and growing unrest ; it was the picture of a culture which had been losing the war for so long that the thought of winning it would have been a totally alien concept. "... The space forces are maintained chiefly through a mixture of organisational inertia and a remaining vestige of racial pride," Harelfia went on, an almost whining note becoming apparent in her voice which was also foreign to the Harelfia of old. "That is the situation behind us when we fight, and it's hard to say whether it is the unquestionable superiority of Earth or this which affects us most. But we're licked anyway, so long as that computer of theirs—"

"There are indications," put in Henson carefully, "that RK9 may be losing her grip."

"Some of us have thought that, too," Harelfia agreed, "and although some of its actions recently have been strategically sense-free, we can't take the chance of ignoring them. We don't *dare* ! The Earth battle computer is not greatly superior, mechanically, to our own. But its directive, its programming—it has a different angle of approach to a battle, as strange and difficult to understand as say, the Human's emotional attraction and protective feelings which they feel towards females of their own species instead of reserving those instincts for their young as we do. We can never be sure that it isn't contemplating some new and more devious strategy.

"The current operation, for instance," Harelfia went on angrily, "has the appearance of being a colossal tactical blunder. Yet we can't act on that assumption and hit back at the points where it has left Earth defenceless. Oh, if only we could . . ." A look of yearning had come to Harelfia's despairing visage and for a moment her eyes shone at the thought of Semran forces plunging through a gap in the Human armour and sweeping everything before them, rolling over the system of Sol and taking Earth itself, Luna and RK9. For a brief, glorious moment Harelfia saw victory, then she shook her head impatiently and continued, "Instead of that our whole defence system has been disrupted in our attempts to counter this very devious or very stupid move. And the more apparently senseless its actions are the more disorganisation and confusion it causes us. We can't trust it.

"The point has been reached," Harelfia concluded hopelessly, "where Earth's tactical computer could go completely mad, and they would still win."

Listening to Harelfia, Henson felt himself wanting desperately to wipe the sick hopelessness from the other's voice and expression. He wanted to tell her that as Colonel Henson he was Aide to Earth's Director of Strategy, who was the Human in charge of RK9. That he must very shortly be taken into Craig's confidence and that he would then know all there was to know about that unbeatable battle computer. Given information in advance he, Henson, would be able to pass it on to Semran agents on Earth—contacts who had escaped detection by security forces for the simple reason that they had remained completely inactive up until now. The sole duty of these agents was to collect and pass on information from Henson, but only when he had information which was worth passing. Very soon now he would have it, Henson wanted to tell her, and with a channel right into the heart of Earth's centre of planning the war would certainly swing back in favour of the Semra. So much so that unless some catastrophic piece of bad luck befell him in the near future, Semra would win the war. He longed to tell Harelfia all these things, but only one thing stopped him.

Kindness.

Harelfia was being exiled on a planet which was intended to become her home and the home of generations to come of Semran prisoners. For a while she and her comrades would be unhappy, but work and the pride they would take in forming a self-supporting community would tend to make them forget—and succeeding generations would forget completely the ideological difference which had caused them to be placed in the planet-wide prison which had become their home world.

But Henson had heard it said of a certain sub-species on Earth that they lost battles but won wars. It was not one hundred percent certain that the Humans would lose and that the conquering Semran forces, given the co-ordinates of the P.O.W. planets by the capitulating Earth, would seek out and release the prisoners. If he told Harelfia everything he knew and then something went wrong, if Harelfia was to spend the whole of her remaining life-time daily expecting a Semran force to rescue her, and with her the rest of the colony, that would be a torture too terrible to contemplate . . .

Gradually the realisation came to Henson that he had been quiet for a long time, and that Harelfia was looking at him intently. He said quickly, "I suppose you'd better be getting back to the others. I'll talk with you again soon, and with the others so as not to arouse suspicion among the guards—there will be a lot you will need to know about setting up the colony . . ." He trailed off into silence.

Harelfia nodded and turned to go, then hesitated. She said, "Our Intelligence people did a good job, Colonel. When you were explaining about the Earth P.O.W. system to us a few minutes ago you sounded truly enthusiastic about it, as if you were really convinced of the rightness of the whole thing. It makes me wonder . . ." She broke off to give Henson another long, searching stare, then added, "I hope you remember which side you're on."

Henson's first impulse was to laugh, his second to explain how thoroughly he had had to steep himself in his Human role; how he had had to strive to *be* a Human, in viewpoint, in manner and even in emotional reactions. If he had not done so he would never have arrived at his present position of trust. But somehow, Henson thought with a sudden feeling of discomfort, all these things would have sounded like a protestation, a lame excuse for some unexplained misdemeanour. In considerable turmoil of mind he watched Harelfia leave and said nothing.

During the work of establishing the colony and on the journey back Harelfia's words returned several times to his mind, bringing vague feelings of guilt. But with his arrival on Luna all these tenuous feelings were obliterated by larger and more immediate issues. Harpalus was seething with excitement over a battle which was expected shortly, and in his absence the situation between Generals Craig and Shawcross over the computer had come to boiling point.

The row was going on in the outer office this time when Henson arrived to make his report, and it stopped as soon as he went through the door. General Craig's face was pale and there was a stubborn set to his jaw as he glared towards Shawcross, whose visage was growing visibly darker with suddenly pent-up emotion. The silence was electric.

Abruptly Shawcross wheeled about. "General Craig," he snapped, "kindly take this blasted Aide of yours into your confidence and tell him what's going on around here. Then

notify Security so I can talk to you when he's hanging around here. That way the ignorant damn fool won't make me burst a blood vessel." He brushed past Henson, paused momentarily to growl, "My apologies, Colonel," then stamped out.

Henson's "Quite all right, sir," was to an empty doorway.

The Director of Strategy did not mention Shawcross at all during Henson's report and the subsequent discussion on it, despite the Colonel's repeated and obvious attempts to guide the conversation that way. Towards the end of it he said suddenly, "Colonel Henson, what is your feeling about this P.O.W. system? And don't say what you think will please me, say what you think!"

The General, Henson saw, was under a severe strain. He felt that Craig was seeking reassurance about something, some decision that the Director of Strategy had taken which even he himself was not sure was right. Henson saw the torment in the other's eyes and thought that of all the Humans he knew, he liked and respected this one the most. But he did not know enough to give the reassurance that was being sought, he could do only as he was told.

He said, "I approve of it. I think it shows some very sound thinking in high places. Normally at this stage on Earth, we would be an expanding culture, exploring, colonizing spreading from system to system. The war stopped that, but not entirely. The colonizing process is going on, with Semran prisoners, and the beauty of it is that they will have forgotten the war in a comparatively short time and be simply colonies waiting to be re-opened to interstellar flight."

Henson hesitated for an instant before going on. What he wanted to say verged on the disloyal, but he decided that the risk was worth taking by saying it because a little verbal disloyalty in a person who was in a high position tended to disarm suspicion more than the other way about. He added, "The Galaxy is being populated and eventually it will be civilised—does it matter by whom? I think it is a very good system."

The General stiffened up suddenly. He said, "There are a lot of things you need to know about this job and I'm going to enlighten you. But not for a few hours yet. There is going to be a battle visible very shortly, one of the biggest, and I want you to watch it with me in the observatory. I'll be able to explain things better there.

"And if you're wondering about the little inquisition," he added, smiling, "it was because I think you a very able man and I was trying to make sure in advance whose side you would be on . . ."

Those, thought Henson after the General had gone, had been almost exactly the same words used to him by Harelf. Both of them had admitted his ability but shown doubt regarding his loyalty. Was there, he wondered uneasily, some indefinable something about him which stamped him as a traitor?

Recently the temptation had been strong to sink himself completely in the Henson role and forget that he was a Semran agent—that would undoubtedly have been the easier and much more safe course. And in his present position and during his rise to it he was doing a lot to help Earth against his own people. That had been necessary for him to gain a position of trust, he had argued at the time, and the wrong he had done would be outweighed by the service he would render in the near future. Maybe the reason for his uneasiness—guilt was not too strong a word—was the fact that he liked this Henson characterisation so much, and that he sometimes felt pleasure in the job of prosecuting the war against his own people.

Craig's remark had to do with inter-departmental loyalties, Henson was sure, but it nevertheless could be a pointer towards some basic flaw in his make-up. Until the time came for him to go to the observatory he fought a continuous, bitter and unresolved struggle with his conscience.

From the viewpoint of an observer in the Solar System the battle was beginning to take shape in the area between the constellations of Cancer, Gemini and Orion, although the actual spatial co-ordinates of its position were nowhere near the stars composing those systems. Through the naked eye it appeared as tiny tendrils, squiggles and fat worms of multi-coloured light all inching together towards a common centre somewhere in the region of Procyon, but with the aid of the equipment in the battle observatory, the details became apparent.

That equipment could give a picture—blurred and distorted, it was true, but still a usable picture—of markings on the surface of 61 Cygni C. It now projected images from the battle area which showed the fat worms and squiggles of light

to be great fleets, sub-fleets and flotillas jockeying for position. It even showed the intermittent breaks in some of the ships' light as their Captains practiced the dodging out of and into hyperspace which was the most important manoeuvre in present-day warfare.

The ship's Light. . .

A vessel using hyperdrive created its own continuum around it and disappeared from normal space—but not quite. From the hyperdrive engines which propelled it through its artificially created spacetime there was an enormous amount of radiation leakage which spilled into normal space as light, a pure, almost solid mass of light so intense that it had to be counted in the order of billions of candlepower per second. Thus it was that even when a ship travelled in hyperspace, *especially* when a ship travelled in hyperspace, its position relative to normal space was always apparent because of its light. But light is a limiting velocity as well as a radiation phenomena and hyperships often exceeded that speed, so that their position as located by their light spillage was long out of date. Above him now, for instance, Henson knew that ships angling towards the battle area from the Solar System side were invisible because being nearer to him their trails of light had already passed, while vessels coming in from beyond it were likewise invisible because their light had not reached him yet.

But they were all drawing rapidly together, soon all their lights would be visible . . .

"That," said General Craig with a wave towards the observatory's transparent dome, "is the reason why we can't afford to relax even now. I doubt if the Semra are in a position to mount another such attack, but we can't be sure. The one we are seeing now, however, could have overrun the Solar System if we hadn't been able to move our defenders out there in time. If it hadn't been for RK9 . . ."

Here it comes, thought Henson eagerly. He was going to find out something important at last. In an effort to hasten the process he said, "I know, sir, but what beats me is why the Semra haven't developed a computer equally as good. They have the brains."

"They have the brains, all right," Craig said. "But brains are not all that is needed, there is a little something extra required which they have not got ; the proper type of emotion.

The Semra are an old, intelligent and emotionless race, and whether they have simply evolved away from it or never possessed it I can't say—I just know that they are incapable of feeling emotion in anything like the degree that we do, and are therefore unable to duplicate RK9.

“But to understand properly,” he went on, “you have to go back to the first battle calculators. R's 1, 2 and 3 were no good, we lost nearly every time with them. R4 was better, and with later models we improved until our computers were the equal of the Semran machines and we won—if you could call it that—about half the time. But you remember what it was like in those days . . .”

Henson could. Looking through the transparent dome above him he could imagine the same things happening to the Semran forces out there.

Interstellar war was a study in contradictions. Men and machines flew ships at speeds faster than light through two continua and yet were forced to use archaic chemical warheads on their missiles. This was because atomic devices of the cruder, less balanced kind—the kind known as mass destruction weapons—became explosively unstable when the ship carrying them ducked in and out of subspace a few times. Engagements were of necessity close-range, bloody affairs, yet fought at such speed and with such a fantastically large number of variations in any given tactical situation that mere beings of flesh and blood were unable to react fast enough to them.

A favourite tactic was for a single ship—or it could be modified for the use of a fleet—to approach an enemy through hyperspace to close range, materialise to launch a missile, then flee into the hyperdimension again. It did not matter if its intended victim was in normal space or the hyperdimension, because in the latter instance any missile directed into the point of emergence of the light spillage would ultimately destroy the ship. A missile directed thus would enter the artificially created space around the target ship and remain there in stasis. But when the ship, after a long or very short time, emerged into normal space the missile would materialise inside it. Providing the problems of course and speed and timing could be solved it was a lovely tactic.

Increasingly complex battle calculators were designed to solve these problems. Each encounter became a sprawling, chaotic dogfight stretching over scores of light-years with the machines which handled the battle throwing units about like

pieces in a monstrous game of chess in frantic attempts to attack and at the same time anticipate and counter an attack from an opponent. And the men inside those ships could do nothing whatever to help one way or the other. It was a battle of cold, unfeeling and inhuman machines . . .

The General was saying, “. . . It was like a game of skittles. Or chess. There was no identification between the computers and the men taking part, they were just so many expendable chess pieces, and the carnage was frightful. The computers were so evenly matched that . . . Well, what was perhaps worse than the casualties suffered in the actual battles was those who were not sure . . .”

Ships, thought Henson sickly, whose crews thought that a missile had found its way through their tail light during the battle, a missile which hung somewhere in the artificial continuum created by their hyperdrive generators, harmless until they tried to re-enter normal space. After a battle it had been a regular occurrence to see a ship come into its home system on hyperdrive only to blow itself apart on emergence. It was said that the personnel on the bigger ships stood a better chance because there was no telling where exactly in their ship the missile would materialise and if they distributed themselves about the ship some of them might survive—unless, of course, it materialised near the magazine . . .

There had been instances where whole fleets had come home, the blinding corruscation of their light proclaiming their desperation and their belief that they were under sentence of death, to disintegrate one by one a few miles above their home ground.

“. . . That sort of thing had a bad effect on morale,” Craig went on grimly. “Maybe our cold, unemotional friends on the other side could take that sort of thing, but we couldn’t. We had to think of some way of changing the rules, and eventually we did. The R6 was the last of the old-style battle computers. There was no R7 or R8, but RK9—”

“R is for Robot, I know,” put in Henson. “But the K9 . . . ?”

“That will become self-evident in a moment,” said Craig. “The thing we were aiming for was for our computer to have personnel identification, to *feel* for the men it was using. We could not simply tell an ordinary computer to win a battle but to go easy on the men, a calculator can’t be programmed

that way and remain efficient—in that case doubling the objective means halving the work done. The solution to the problem lay in neuro-surgery as well as in cybernetics. We decided to incorporate a living brain.”

“We had lots of volunteers, naturally,” the General continued quickly before Henson could say anything, “but we didn’t use them. We wanted a mind and a personality which would love humanity no matter what we did to it, and all too often, I’m sorry to say, man in the singular does not love mankind in the mass. So we used a dog—”

Craig broke off suddenly to stab a button on the panel before him, and a section of the battle flashed onto the main enlarger screen. The loops and arcs and cloudy patches of light told of a sizable Earth fleet cutting out and englobing a relatively minute force of the enemy. A few long, straight shafts of light told of vessels making for home and carrying their own destruction with them. But the main force of the Semrans being englobed would surrender. They would do it not because they lacked courage but simply because they were logical about such things and knew when a situation was hopeless. They would submit to having their hyperdrive generators wrecked by Earth technicians, and thus immobilised would wait until the battle was over for the Humans to make them prisoner and later make use of their ships.

“Nice,” said the General, and switched to another sector of the battle. He resumed, “The dog idea worked fine. It won battles for us in such sneaky, roundabout ways that the casualty figures dropped to practically nothing and morale soared. It was a perfect combination—a big, awkward, friendly mutt acting as thalamus to a super electronic brain. But in some ways she wasn’t a very bright dog . . .”

The General’s tone had become harsh and he was punching buttons furiously and not bothering to look at the pictures they produced. Henson felt certain that he was doing it so that he would not have to meet his Aide’s eyes.

“ . . . For instance: The Semra resemble us so closely that it began to bother her apparently when we had to kill a lot of them, so she arranged her tactics so that more and more prisoners were taken. We didn’t mind that because among other things we could use their ships. Then the P.O.W. problem arose and she told us how to solve that in a way

easy for us and them as well. But now she has begun to do very stupid things.

"Things like collecting a fleet out by Sirius, stripping a whole sector of defences to do it, sending it tearing half across the Galaxy and then leaving it hanging there ! There have been other things as well.

"Shawcross wants her destroyed."

Above them the battle was approaching its climax but neither officer looked at it. Henson thought that never had he seen such misery and desperate pleading in the eyes of any man as that being directed at him by General Craig. Instinctively he felt sympathy, an emotion he very rarely felt, but it was rapidly overwhelmed by sheer exultation as the General went on speaking. Now he *knew* . . . !

"It is eighty-odd years since they took her brain," he said thickly. "She was little more than a pup then, and all the resources of medical science have been used to maintain her brain at full efficiency. But that could not be expected to go on forever. Her mind is becoming rapidly more senile, she has started to chase imaginary rabbits, re-fighting the great battles of her youth against non-existent foes—that 'penetration in force' a while back was one instance. Shawcross says we cannot afford to maintain a battle computer which has begun to dote."

"You think she should be," said Henson in a carefully neutral voice, making it sound a statement rather than a question. His eyes slid away from the anguished face of the General to the little groups of high officers dotting the floor of the dome, to the men out on the surface watching the battle through spacesuit helmets, then up to the flaring, pulsating, wide-flung banner in the sky.

Many of them, the General included, had actually taken part in this battle they were watching. It had taken place over seventeen years ago and the fact that it was being watched here and now was because it had occurred over seventeen light-years from Earth and the Light had only now arrived. It was the last attempt, the Earthmen thought, which the Semra could try at striking at the heart of the enemy culture.

Semra had been beaten to her knees, Henson knew, she was about ready to give in. But she must be capable of making one last, all-out effort, and given the information which he now had and full data on the dispositions of Earth forces

while they were unknowingly involved in re-fighting past battles, that one effort might very well win them the war . . .

"I do !" said the General, the words bringing back to Henson the realisation that he was still in the middle of a conversation. "When you think of what we did to her—how we took her when she was only half grown, cut her off from all the sense perceptions, sound, sight, smell and all pleasure stimuli, normal in a dog. And the weeks of agony she must have gone through while we were doing all that.

"Yet she kept on loving us, the stupid pup !" Craig said half angrily. "What's more she learned to use and dominate the mechanical senses we had given her, and many times she saved the race with them. Not only that ; this war, which could have been a savage, brutal, bloody conflict bringing total extinction to both sides, she has forced us to fight clean and . . . and humane.

"The Semrans owe her a lot, too," he went on, momentarily off on a tangent, "though they don't realise it. This whole idea is impossible to them, because they have long grown away from feeling friendship or love for lower life-forms and it is problematical whether they will ever grow back. Not that they are cruel, or even thoughtless, they're not. But they just have not got the emotional equipment . . ."

Above them the battle which was too vast and complex for mere human brains to follow was over. It was a great, tangled mass of glowing threads now, blazing with every colour in the spectrum because of their angular displacement, and already throwing out the great tentacles of light which indicated fleets going home, perhaps to die. It was a mark in the sky which would be seen all over the Galaxy—a stupid scribble made by two races who had not yet grown up but perhaps time would remedy that.

The General had accused the Semra of being without emotion, Henson thought as he looked up with a mental struggle more violent than anything he had ever experienced before boiling within him. But Craig might be wrong. Maybe it had been the continued close contact with Humans which had done it, but this feeling in the throat, this tightness, this sense of something that was almost pain over an animal whose very existence he had been unaware of a few minutes previously . . . Yes, the General was definitely wrong, because



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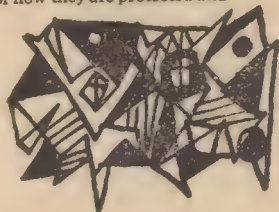
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when Henson looked upwards the lights of battle were overlaid by the picture of a dog.

It was an old dog. An old, blind dog whose hair was falling out and who didn't have sense enough to come in out of the rain. A dog that shivered and twitched and whined to itself while it dreamed of its past. A dog that had given love and long, faithful service despite the kicks and beatings. And a dog, Henson thought, who more than deserved to go on dreaming for a while.

But the General had been talking, though Henson did not know what he had been saying, and was waiting for some sort of reply.

"I . . . I think you're right, sir," he said, and wondered that the General failed to notice the strain in his voice. "And I don't think you have to worry about Shawcross—RK9 has the reputation of being unbeatable, and even if she does nothing else but chase her tail from now on it will look like some devious new tactic to the Semra. Besides, a mad dash half across the Galaxy now and then is good for discipline . . ."

It was no good, Henson told himself as he talked. Even if he sent this vital information home, and it was acted upon and Earth was overrun, it would still be no good. Semra could never win, never finally and unquestionably win, against a race that could spend countless millions on men and material movements out of kindness to a doting old dog. Nobody could win against a race which could be both so ruthless and so kind as that.

Deep within him there was a voice which cursed and reviled and called him traitor. It would continue, probably, for the rest of Henson's life, but it would never influence his actions.

He said, "Believe me, sir, I'm on your side . . ."

James White

THE LITERARY LINE-UP

Story ratings for No. 77 were :

- | | | | | | | | | |
|----|--------------------|---|---|---|---|---|---|------------------|
| 1. | Life Plan | - | - | - | - | - | - | Colin Kapp |
| 2. | Trouble With Emily | - | - | - | - | - | - | James White |
| 3. | Carrion Country | - | - | - | - | - | - | Brian W. Aldiss |
| 4. | The Dusty Death | - | - | - | - | - | - | John Kippax |
| | Who's There ? | - | - | - | - | - | - | Arthur C. Clarke |
| 5. | Flatiron | - | - | - | - | - | - | Arthur Sellings |



Dear John,

This New Year seems even more appropriate a season than most to take stock, especially after the news from America of folding magazines and after enquiries into the state of science fiction in your editorials and in such letters in *Postmortem* as Dan Morgan's.

It's difficult for a writer to comment, as people may take his own writings as a yardstick to judge his capacity to criticise. They may also suspect vested interest, interpreting his praise as back-scratching and his censure as sour grapes. I hope you know me better.

To deal with one incidental point first, I think Dan took an awfully unfair sideswipe at American authors in his letter. Certainly there *is* more hackwork in the American magazines than here—simply because there are more magazines. For the same reason more good stuff appears there. And the *average* rate in the States is nowhere near £10 a thousand words ; this is nearer the top rate. The average is around £5, probably less.

But to the main point I want to discuss. What I have to say may not be original, but I think it wants stating at this time. And here I'm really striving to be objective, because nothing's easier for an author than to blame editors ! But I don't entirely want to do that. Science fiction is a condition of symbiosis. Whatever faults there are can be laid in varying degrees at the doors of everybody connected with it. But, after all, it is the editors who pay the piper. The editors can answer that they're not free agents, that they are ground between the publishers on the one hand and by the cash customers, the readers, on the other. And justifiably when publishers insist on slants toward the occult, sex, UFO's, Dianetics or what have you, to lure as many fringe readers as possible.

Science fiction should certainly be aware of current trends and adapt to them. I believe it does—when it is allowed to. But it must remain true to its basic character. Science Fiction is read by a lot of people these days, as any lending library record will show ; but it is *bought* by only a small section of the

population. Their numbers will always be swelled by newcomers, whether these come from the lending library ranks or elsewhere. But they will be put off for good if they find non-science fiction masquerading as s-f in the magazines. Moreover, I am sure that their number greatly exceeds the number of those likely to be attracted temporarily by appeals to their own non-s-f predilections. I think the state of things in America bears that out.

But only the most opportunist or victimised editors have to submit to such pressures. The really successful ones are men with a determined interest in the field, who can see where science fiction is in a groove and what needs doing. Writers adjust to their demands—which doesn't mean they're hacks. In fact, as most of the successful editors come from the writing ranks, it could be maintained that it is the dissatisfaction of the writers, and their consequent pressure, which force changes. An example, in fact, of the working of that symbiosis I mentioned.

But, ironically, the very strength of such editors becomes a failing. For soon a new conformism is born. And conformism is surely more out of place in science fiction than anywhere. Perhaps I can illuminate its bad effects on the writer.

Firstly, I must maintain that science fiction is a literature of ideas. A guest editorial by J. T. McIntosh in one of your magazines a few years back argued that new ideas were no longer welcome. I don't think this has ever been true. But there are forces that work against their emergence. It happens like this. There is no shortage of ideas. I have heard enough discussed in one evening at the "Globe Tavern" to keep a writer for a year—if he can only cast them into story form. *That's* the hard part. A lot of ideas won't build up in a currently favoured form. For instance, two forms that are frowned on are the interior monologue and the episodic pattern which shows the impact of a central event on unconnected characters. Which is unfortunate, because both are obviously useful in science fiction.

But that may not be entirely the fault of the editors ; these two forms are out of favour generally in writing. That is probably part of the trouble, that science fiction, after its recognition of the past decade, identifies itself too much with the mainstream. Science fiction must be itself.

What that self is is too big a subject to pursue in one letter. But the set-policy editor will not encourage its development. The editor of one leading magazine in the States has stated that

he knows the stories he prints are not first-rate but that they are the best he gets. Another editor has said that it is his aim to get his writers to write *his* way. He has succeeded ; that is more than his magazine is currently doing. That both these editors are wrong is shown by the number of stories named and printed in Judith Merrill's annual *Best S-F* collections, or otherwise anthologised, which come from the lower-paying magazines. You can bet your life that most of these were offered to the higher-paying magazines first. Of course, no editor is infallible, and some stories do transgress perfectly legitimate editorial policy, but the score is too high to do other than support my contention.

On the other hand, there are editors who have thrived by being eclectic, like Margulies with *Fantastic Universe*. Working with less backing than the leading magazines, and paying only a third their rate, he built up sales on a policy that anything went, provided the idea or the treatment were fresh. And while he was editing it, for all its catholicity, *FU* had an identity of its own. More important, there was a climate in which an author could treat a story his own way, with a fair chance of its seeing publication.

I know I'm repeating myself, but science fiction is a literature of ideas. I don't mean pseudo-scientific gimmicks, but new viewpoints, new probings into the unknown—even new experiments in style. Because if the style is fresh it can't help but invigorate even an old idea. The idea/style relation is as reciprocal as this editor/writer relation I've been harping on.

I am convinced that science fiction has a great deal more to say than it has already. I am sure that all the basic ideas such as space-flight, robots, telepathy, immortality, can yield new significant writing—if the climate is there in which it can flourish.

That's why I've welcomed your own adventurous policy of the past year or so, and also the resuscitation of the *Postmortem* department, because the readers are finally the most important factor in the whole set-up. They can play a big part in maintaining that climate of activity, of continual questioning of view points, in stories, in editorial and critical writing—and in themselves. For instance, (and excuse my using one of my own stories as an example, but it illustrates what I mean) ; in my recent "For the Colour Of His Hair" I raised an objection to a theory which 99.99% of science fiction readers (and writers) seem to accept unquestioningly—that of evolution by gradual mutation and natural selection. It is not my own

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objection ; the quotation I made in the story is from an actual book published over 50 years ago, but it has been stated before and since then. The story "explained" it away in science fiction terms, but there seems to be a vested interest against admitting this objection ; see, for example the way J. B. S. Haldane "answered" it in his *Possible Worlds*. I have yet to see it answered satisfactorily. I am hoping that some of your specialist readers may write in to comment. I am no specialist, but I'll do my best to join in.

1959 seems to have started all this, so here's wishing you all the best for it.

Arthur Sellings,
London W.10.

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